

(For candidates admitted from 2008 to 2015 Batch)

U.G. DEGREE EXAMINATION, APRIL 2022.

Part IV — Mathematics – Non Major Elective

QUANTITATIVE APTITUDE – I

Time : Three hours

Maximum : 75 marks

Answer ALL questions.

$(75 \times 1 = 75)$

Multiple Choice questions:

1. What least number must be added to 2010 to obtain a number which is completely divisible by 19?
(a) 5 (b) 6
(c) 4 (d) 10
2. What is the unit digit in $(4137)^{754}$?
(a) 1 (b) 3
(c) 7 (d) 9
3. $217 \times 217 + 183 \times 183 = ?$
(a) 79698 (b) 80578
(c) 80698 (d) 81268
4. $\frac{(489 + 375)^2 - (489 - 375)^2}{(489 \times 375)} = ?$
(a) 144 (b) 864
(c) 2 (d) 4
5. The sum of even numbers between 1 and 31 is
(a) 6 (b) 128
(c) 240 (d) 512
6. The HCF of 1.75, 5.6 and 7 is
(a) 0.07 (b) 0.7
(c) 3.5 (d) 0.35

7. The ratio of two numbers is 3:4 and their HCF is 4. Their LCM is
- (a) 12 (b) 16
(c) 24 (d) 48
8. The HCF of two numbers is 8. Which one of the following can never be their LCM?
- (a) 24 (b) 48
(c) 56 (d) 40
9. Which of the following fractions is the largest?
- (a) $\frac{7}{8}$ (b) $\frac{13}{16}$
(c) $\frac{31}{40}$ (d) $\frac{63}{80}$
10. The greatest number of four digits which is divisible by 15, 25, 40, 75 is
- (a) 9000 (b) 9400
(c) 9800 (d) 9600
11. If the sum of two numbers is 42 and their product is 437, then find the absolute difference between the numbers.
- (a) 4 (b) 10
(c) 3 (d) 15
12. If one-third of one-fourth of a number is 15, then three-tenth of that number is
- (a) 35 (b) 36
(c) 45 (d) 54
13. Find the number which when multiplied by 15 is increased by 196.
- (a) 14 (b) 20
(c) 26 (d) 28
14. Two numbers differ by 5. If their product is 336, then sum of two numbers is
- (a) 21 (b) 28
(c) 37 (d) 51

15. The sum of four consecutive integers which are even is 1284. The greatest of them is
- (a) 320 (b) 322
(c) 324 (d) 326
16. The least among the following is
- (a) 0.2 (b) $1 \div 0.2$
(c) $0.\overline{2}$ (d) $(0.2)^2$
17. $0.\overline{36}$ expressed in the form of $\frac{p}{q}$ equals
- (a) $\frac{4}{11}$ (b) $\frac{4}{13}$
(c) $\frac{35}{90}$ (d) $\frac{35}{99}$
18. $(0.34\overline{67} + 0.13\overline{33})$ is equal to
- (a) $0.4\overline{8}$ (b) $0.\overline{48}$
(c) $0.48\overline{01}$ (d) 0.48
19. If $2994 \div 14.5 = 172$, then $29.94 \div 1.45 = ?$
- (a) 0.172 (b) 1.72
(c) 17.2 (d) 172
20. The value of $0.5\overline{7}$ is
- (a) $\frac{57}{10}$ (b) $\frac{57}{99}$
(c) $\frac{26}{45}$ (d) $\frac{52}{9}$
21. Which of the following fractions is greater than $\frac{3}{4}$ and less than $\frac{5}{6}$?
- (a) $\frac{4}{5}$ (b) $\frac{2}{3}$
(c) $\frac{9}{10}$ (d) $\frac{1}{2}$

22. Which part contains the fractions in ascending order?

(a) $\frac{11}{14}, \frac{16}{19}, \frac{19}{21}$

(b) $\frac{16}{19}, \frac{11}{14}, \frac{19}{21}$

(c) $\frac{16}{19}, \frac{19}{21}, \frac{11}{14}$

(d) $\frac{19}{21}, \frac{11}{14}, \frac{16}{19}$

23. When 0.232323.... is converted into a fraction, then the result is

(a) $\frac{1}{5}$

(b) $\frac{2}{9}$

(c) $\frac{23}{99}$

(d) $\frac{23}{100}$

24. If $a^2 + b^2 = 117$ and $ab = 54$ then find the value of $\frac{a+b}{a-b}$.

(a) 3

(b) 5

(c) 4

(d) 7

25. $\frac{3}{8}$ of $168 \times 15 \div 5 + ? = 549 \div 9 + 235$.

(a) 107

(b) 174

(c) 1

(d) 663

26. How many $\frac{1}{8}$ s are in $37\frac{1}{2}$?

(a) 300

(b) 400

(c) 500

(d) Cannot be determined

27. If $4x + 5y = 83$ and $\frac{3x}{2y} = \frac{21}{22}$, then $y - x = ?$

(a) 3

(b) 4

(c) 7

(d) 11

28. How many pieces of 85 cm length can be cut from a rod 42.5 metres long?

(a) 30

(b) 40

(c) 60

(d) 50

29. The value of $999\frac{95}{999} \times 999$ is

- (a) 990809 (b) 998996
(c) 998999 (d) 999824

30. What fraction of an hour is a second?

- (a) $\frac{1}{24}$ (b) $\frac{1}{60}$
(c) $\frac{1}{120}$ (d) $\frac{1}{3600}$

31. $(27)^{\frac{2}{3}} = ?$

- (a) 9 (b) 27
(c) $3\sqrt{3}$ (d) 3

32. $(256)^{0.16} \times (256)^{0.09} = ?$

- (a) 4 (b) 16
(c) 64 (d) 256.25

33. If $5^a = 3125$, then the value of $5^{(a-3)}$ is

- (a) 125 (b) 625
(c) 1625 (d) 25

34. If $2^{2n-1} = \frac{1}{8^{n-3}}$, the value of n is

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

35. If $x = 3 + 2\sqrt{2}$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is

- (a) 1 (b) 2
(c) $2\sqrt{2}$ (d) $3\sqrt{3}$

36. 2 is what percent of 50?

- (a) 15% (b) 5%
(c) 4% (d) 2%

37. 60% of 264 is the same as
- (a) 10% of 44 (b) 15% of 1056
- (c) 30% of 132 (d) None of these
38. The number which exceeds 16% of it by 42 is
- (a) 50 (b) 52
- (c) 58 (d) 60
39. 5% of 25% of 1600 is
- (a) 5 (b) 17.50
- (c) 20 (d) 25
40. If 120 is 20% of a number, then 120% of that number will be
- (a) 20 (b) 120
- (c) 360 (d) 720
41. Ram gives 70 paise on Rs.70. His gain percent is
- (a) 0.1% (b) 1%
- (c) 7% (d) 10%
42. 10% loss on selling price is what percent loss on the cost price?
- (a) $9\frac{1}{11}\%$ (b) $9\frac{2}{11}\%$
- (c) 10% (d) 11%
43. A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?
- (a) 3 (b) 4
- (c) 5 (d) 6
44. If loss is $\frac{1}{3}$ of selling price, the loss percentage is
- (a) $16\frac{2}{3}\%$ (b) 20%
- (c) 25% (d) $33\frac{1}{3}\%$

45. If the selling price is doubled, the profit triples. Find the profit percent.
- (a) $66\frac{2}{3}$ (b) 100
(c) $105\frac{1}{3}$ (d) 120
46. If Rs.782 be divided into three parts, proportional to $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$, then the first part is.
- (a) Rs.182 (b) Rs.190
(c) Rs.196 (d) Rs.204
47. If $A:B = 3:4$ and $B:C = 8:9$ then $A:C$ is
- (a) 1:3 (b) 3:2
(c) 2:3 (d) 1:2
48. Two numbers are in the ratio 1:2. If 7 is added to both, their ratio changes to 3:5. The greatest number is
- (a) 24 (b) 26
(c) 28 (d) 32
49. An alloy is to be contain copper and zinc in the ratio 9:4. The zinc require to be melted with 24 kg of copper is
- (a) $10\frac{2}{3}$ kg (b) $10\frac{1}{3}$ kg
(c) $9\frac{2}{3}$ kg (d) 9 kg
50. If $\frac{a}{3} = \frac{b}{4} = \frac{c}{7}$ then $\frac{a+b+c}{c}$ is equal to
- (a) 7 (b) 2
(c) $\frac{1}{2}$ (d) $\frac{1}{7}$
51. If $4(\text{A's capital}) = 6(\text{B's capital}) = 10(\text{C's capital})$, then out of a profit of Rs.4650, C will receive
- (a) Rs.465 (b) Rs.900
(c) Rs.1,550 (d) Rs.2,250

52. Three partners shared the profit in a business in the ratio 5:7:8. They had partnered for 14 months, 8 months and 7 months respectively. What was the ratio of their investments?
- (a) 5:7:8 (b) 28:49:64
(c) 38:28:21 (d) 20:35:64
53. A and B invest in a business in the ratio 3:2. If 5% of the total profit goes to charity and A's share is Rs.855, the total profit is
- (a) Rs.1,425 (b) Rs.1,500
(c) Rs.1,537.50 (d) Rs.1,576
54. Kamal started a business investing Rs.9,000. After five months, Sameer joined with a capital of Rs.8,000. If at the end of the year, they earn a profit of Rs.6,970, then what will be the share of Sameer in the profit?
- (a) Rs.9,423 (b) Rs.12,500
(c) Rs.10,250 (d) Rs.14,000
55. A starts business with Rs.3,500 and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2:3. What is B's contribution in the capital?
- (a) Rs.7,500 (b) Rs.8,000
(c) Rs.8,500 (d) Rs.9,000
56. In what ratio must water be mixed with milk costing Rs.12 per litre to obtain a mixture worth of Rs.8 per litre?
- (a) 1:2 (b) 2:1
(c) 2:3 (d) 3:2
57. In what ratio must water be mixed with milk to gain $16\frac{2}{3}\%$ on selling the mixture at cost price?
- (a) 1:6 (b) 6:1
(c) 2:3 (d) 4:3

58. A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced with water so that the mixture may be half water and half syrup?

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$

(c) $\frac{1}{5}$ (d) $\frac{1}{7}$

59. A dishonest milkman professes to sell his milk at cost price but he mixes it with water and thereby gains 25%. The percentage of water in the mixture is

(a) 4% (b) $6\frac{1}{4}\%$

(c) 20% (d) 25%

60. How many kilograms of sugar costing Rs.9 per kg must be mixed with 27kg of sugar costing Rs.7 per kg so that there may be a gain of 10% by selling the mixture of Rs.9.24 per kg?

(a) 36 kg (b) 42 kg

(c) 54 kg (d) 63 kg

61. The average of first five multiples of 3 is

(a) 3 (b) 9

(c) 12 (d) 15

62. The average of 2,7,6 and x is 5 and the average of 18,1,6, x and y is 10. What is the value of y ?

(a) 5 (b) 10

(c) 20 (d) 30

63. The average of 20 numbers is zero of them, at the most, how many may be greater than zero?

(a) 25 (b) 27

(c) 30 (d) 35

64. The average of five numbers is 27. If one number is excluded, the average becomes 25. The excluded number is,

(a) 25 (b) 27

(c) 30 (d) 35

65. The average of ten numbers is 7. If each number is multiplied by 12, then the average of the new set of number is
- (a) 7 (b) 19
(c) 82 (d) 84
66. The average of 7 consecutive numbers is 20. The largest of these numbers is
- (a) 23 (b) 20
(c) 19 (d) 22
67. The average age of 35 students in a class is 16 years. The average age of 21 students is 14. What is the average age of remaining 14 students?
- (a) 15 years (b) 18 years
(c) 19 years (d) 17 years
68. The average of all odd numbers upto 100 is
- (a) 49 (b) 49.5
(c) 50 (d) 51
69. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present ages.
- (a) 16 years and 3 years
(b) 14 years and 30 years
(c) 8 years and 24 years
(d) 15 years and 31 years
70. Hitesh is 40 years old and Ronnie is 60 years old. How many years ago was the ratio of their age is 3:5?
- (a) 5 years (b) 10 years
(c) 20 years (d) 37 years

71. A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?
- (a) 7 (b) 8
(c) 9 (d) 10
72. A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old is the mother at present?
- (a) 32 years (b) 36 years
(c) 40 years (d) 48 years
73. The sum of the present ages of a father and his son is 60 years. Six years ago, father's age was five times the age of the son. After 6 years, son's age will be
- (a) 12 years (b) 14 years
(c) 18 years (d) 20 years
74. The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present age is
- (a) 5:2 (b) 7:3
(c) 9:2 (d) 13:4
75. The sum of the ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?
- (a) 4 years (b) 10 years
(c) 8 years (d) 6 years