

(For candidates admitted from 2016 – 2017 onwards)

U.G. DEGREE EXAMINATION, NOVEMBER 2022.

Part IV – MATHEMATICS – Non Major Elective

QUANTITATIVE APTITUDE -II

Time : Three hours

Maximum : 75 marks

Answer ALL questions.

Multiple choice questions.

(75 × 1 = 75)

1. If the price of 6 toys is Rs.264.37, what will be the approximate price of 5 toys?
(a) Rs.140 (b) Rs.100
(c) Rs.200 (d) Rs.220
2. If 11.25 m of a uniform iron rod weighs 42.75 kg, what will be the weight of 6 m of the same rod?
(a) 22.8 kg (b) 25.6 kg
(c) 28 kg (d) 26.5 kg
3. 36 men can complete a piece of work in 18 days. In how many days will 27 men complete the same work?
(a) 12 (b) 18
(c) 22 (d) 24
4. If $\frac{3}{5}$ of a cistern is filled in 1 minute, how many more time will be required to fill the rest of it?
(a) 30 sec (b) 40 sec
(c) 36 sec (d) 24 sec
5. In a camp, 95 men had provisions for 200 days. After 5 days 30 men left the camp for how many days will the remaining food last now?
(a) 180 (b) 285
(c) $139\frac{16}{19}$ (d) none of these

6. A can finish a work in 18 days and B can do the same work in half the time taken by A. Then, working together, what part of the same work they can finish in a day?
- (a) $\frac{1}{6}$ (b) $\frac{1}{9}$
 (c) $\frac{2}{5}$ (d) $\frac{2}{7}$
7. A man can do a piece of work in 5 days, but with the help of his son, he can do it in 3 days. In what time can the son do it alone?
- (a) $6\frac{1}{2}$ days (b) 7 days
 (c) $7\frac{1}{2}$ days (d) 8 days
8. A and B can do a work in 12 days, B and C in 15 days, C and A in 20 days. If A, B and C work together, they will complete the work in
- (a) 5 days (b) $7\frac{5}{6}$ days
 (c) 10 days (d) $15\frac{2}{3}$ days
9. A, B and C can do a piece of work in 11 days, 20 days and 55 days respectively, working alone. How soon can the work be done if A is assisted by B and C on alternate days?
- (a) 7 days (b) 8 days
 (c) 9 days (d) 10 days
10. 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it?
- (a) 35 (b) 40
 (c) 45 (d) 50
11. Pipe A can fill a tank in 5 hours, pipe B in 10 hours and pipe C in 30 hours. If all the pipes are open, in how many hours will the tank be filled?
- (a) 2 (b) 2.5
 (c) 3 (d) 3.5

12. A pump can fill a tank with water in 2 hours. Because of a leak, it took $2\frac{1}{3}$ hours to fill the tank. The leak can drain all the water of the tank in
- (a) $4\frac{1}{3}$ hrs (b) 7 hrs
(c) 8 hrs (d) 14 hrs
13. A tank is filled in 5 hours by three pipes A, B and C. The Pipe C is twice as fast as B and B is twice as fast as A. How much time will pipe A alone take to fill the tank?
- (a) 20 hrs (b) 25 hrs
(c) 35 hrs (d) 40 hrs
14. Two pipes A and B can fill a tank in 6 hours and 4 hours respectively. If they are opened on alternate hours and if Pipe A is opened first, in how many hours. The tank shall be full?
- (a) 4 (b) $4\frac{1}{2}$
(c) 5 (d) $5\frac{1}{2}$
15. Two pipes A and B can fill a cistern in $37\frac{1}{2}$ minutes and 45 minutes respectively. Both pipes are opened. The cistern will be filled in first half an hour, if the pipe B is turned off after
- (a) 5 min (b) 9 min
(c) 10 min (d) 15 min
16. An athlete runs 200 metres race in 24 seconds. His speed is
- (a) 20 km/hr (b) 24 km/hr
(c) 28.5 km/hr (d) 30 km/hr
17. A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?
- (a) 3.6 (b) 7.2
(c) 8.4 (d) 10
18. How long will a boy take to run round a square field of side 35 metres, if he runs at the rate of 9 km/hr?
- (a) 50 sec (b) 52 sec
(c) 54 sec (d) 56 sec

19. One of the two buses completes a journey of 300 km in $7\frac{1}{2}$ hours and the other a journey of 450 km in 9 hours. The ratio of their average speed is
- (a) 2:3 (b) 3:4
(c) 4:5 (d) 8:9
20. A man performs $\frac{3}{5}$ of the total journey by rail, $\frac{17}{20}$ by bus and the remaining 6.5 km on foot. His total journey is
- (a) 65 kms (b) 100 kms
(c) 120 kms (d) 130 kms
21. A speed of 14 metres per second is the same as
- (a) 28 km/hr (b) 46.6 km/hr
(c) 50.4 km/hr (d) 70 km/hr
22. A train 280 m long, running with a speed of 63 km/hr will pass a tree in
- (a) 15 sec (b) 16 sec
(c) 18 sec (d) 20 sec
23. A train 360 m long is running at a speed of 45 km/hr. In what time, will it pass a bridge 140 m long?
- (a) 40 sec (b) 42 sec
(c) 45 sec (d) 48 sec
24. A train 132 m long passes a telegraph pole in 6 seconds. Find the speed of the train.
- (a) 70 km/hr (b) 72 km/hr
(c) 79.2 km/hr (d) 80 km/hr
25. The length of the bridge, which a train 130 metres long and travelling at 45 km/hr can cross in 30 seconds is
- (a) 200 m (b) 225 m
(c) 245 m (d) 250 m
26. A man can row upstream at 8 kmph and downstream at kmph. The speed of the stream is
- (a) 2.5 km/hr (b) 4.2 km/hr
(c) 5 km/hr (d) 10.5 km/hr

27. A boat running downstream covers a distance of 16 km in 2 hours while for covering the same distance upstream, it takes 4 hours. What is the speed of the boat in still water?
- (a) 4 km/hr (b) 6 km/hr
(c) 8 km/hr (d) None of the above
28. A man takes twice as long to row a distance against the stream as to row the same distance in favour of the stream. The ratio of the speed of the boat (in still water) and the stream is
- (a) 2:1 (b) 3:1
(c) 3:2 (d) 4:3
29. A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is
- (a) 8.5 km/hr (b) 9 km/hr
(c) 10 km/hr (d) 12.5 km/hr
30. A man rows downstream 32 km and 14 km upstream. If he takes 6 hours to covers each distance, then the velocity (in kmph) of the current is
- (a) $\frac{1}{2}$ (b) 1
(c) $1\frac{1}{2}$ (d) 2
31. What will be the simple interest earned on an amount of Rs.16,800 in 9 months at the rate of $6\frac{1}{4}\%$ p.a.?
- (a) Rs.787.50 (b) Rs.812.50
(c) Rs.860 (d) Rs.887.50
32. What is the present worth of Rs.132 due in 2 years at 5% simple interest per annum?
- (a) Rs.112 (b) Rs.118.80
(c) Rs.120 (d) Rs.122
33. The simple interest at X% for X years will be Rs.X on the sum of
- (a) Rs.X (b) $\text{Rs.} \left[\frac{100}{x} \right]$
(c) Rs.100 X (d) $\text{Rs.} \left[\frac{100}{x^2} \right]$

34. In how many years, Rs.150 will produce the same interest at 8% as Rs.800 produce in 3 years at $4\frac{1}{2}\%$?
- (a) 6 (b) 8
(c) 9 (d) 12
35. A sum of money at simple interest amounts to Rs.815 in 3 years and to Rs.854 in 4 years. The sum is
- (a) Rs.650 (b) Rs.690
(c) Rs.698 (d) Rs.700
36. The compound interest on Rs.20,480 at $6\frac{1}{4}\%$ per annum for 2 years 73 days, in
- (a) Rs.2,929 (b) Rs.3,000
(c) Rs.3,131 (d) Rs.3,636
37. What will be the difference between simple and compound interest at 10% per annum on a sum of Rs.1,000 after 4 years?
- (a) Rs.31 (b) Rs.32.10
(c) Rs.40.40 (d) Rs.64.10
38. The compound interest on Rs.30,000 at 7% per annum is Rs.4,347. The period (in years) is
- (a) 2 (b) $2\frac{1}{2}$
(c) 3 (d) 4
39. The principal that amounts to Rs.4,913 in 3 years at $6\frac{1}{4}\%$ per annum compound interest compounded annually is
- (a) Rs.3,096 (b) Rs.4,076
(c) Rs.4,085 (d) Rs.4,096
40. In how many years will a sum of Rs.800 at 10% per annum compounded semi-annually become Rs.926.10?
- (a) $1\frac{1}{3}$ (b) $1\frac{1}{2}$
(c) $2\frac{1}{3}$ (d) $2\frac{1}{2}$

41. The cash realised on selling a 14% stock at Rs.106.25, brokerage being $\frac{1}{4}\%$ is
- (a) Rs.105.50 (b) Rs.106
(c) Rs.106.50 (d) Rs.113.75
42. The income derived from a Rs.100, 13% stock at Rs.105 is
- (a) Rs.5 (b) Rs.8
(c) Rs.13 (d) Rs.18
43. A 9% stock yields 8%. The market value of the stock is
- (a) Rs.72 (b) Rs.92
(c) Rs.112.50 (d) Rs.116.50
44. By investing Rs.1,620 in 8% stock, Micheal earns Rs.135. The stock is then quoted at
- (a) Rs.80 (b) Rs.96
(c) Rs.106 (d) Rs.108
45. By investing in $16\frac{2}{3}\%$ stock at 64, one earns Rs.1,500. The investment made is
- (a) Rs.5,640 (b) Rs.5,760
(c) Rs.6,500 (d) Rs.9,600
46. A rectangular carpet has an area of 120 sq. metres and a perimeter of 46 metres. The length of its diagonal is
- (a) 15 m (b) 16 m
(c) 17 m (d) 20 m
47. The area of a square field is 69696 cm². Its diagonal will be equal to
- (a) 313.296 m (b) 353.296 m
(c) 373.296 m (d) 393.296 m
48. The ratio of the areas of two squares, one having its diagonal double than the other is
- (a) 2:1 (b) 2:3
(c) 3:1 (d) 4:1

49. What happens to the area of a square when its side is halved? Its area will
- (a) remains same (b) become half
(c) become one-fourth (d) become double
50. The area of a circle of radius 5 is numerically what percent of its circumference?
- (a) 200 (b) 225
(c) 240 (d) 250
51. Find the surface area of a $10\text{ cm} \times 4\text{ cm} \times 3\text{ cm}$ brick
- (a) 84 sq.cm (b) 124 sq.cm
(c) 164 sq.cm (d) 180 sq.cm
52. How many cubes of 10 cm edge can be put in a cubical box in 1 m edge?
- (a) 10 (b) 100
(c) 1,000 (d) 10,000
53. The volumes of two cubes are in the ratio 8:27. The ratio of their surface area is
- (a) 2:3 (b) 4:9
(c) 12:9 (d) none of these
54. If each edge of a cube is increased by 25%, then the percentage increase in its surface area is
- (a) 25% (b) 48.75%
(c) 50% (d) 56.25%
55. Volume of a hemisphere is 19404 cu.cm. Its radius is
- (a) 10.5 cm (b) 17.5 cm
(c) 21 cm (d) 42 cm
56. The reflex angle between the hands of a clock at 10.25 is :
- (a) 180° (b) $192\frac{1}{2}^\circ$
(c) 195° (d) $197\frac{1}{2}^\circ$
57. How many times in a day, the hands of a clock are straight?
- (a) 22 (b) 24
(c) 44 (d) 48

58. How many times in a day, are the hands of a clock in straight line but opposite in direction?
- (a) 20 (b) 22
(c) 24 (d) 48
59. At what time between 7 and 8 O'clock will the hands of a clock be in the same straight line but, not together?
- (a) 5 min. past 7 (b) $5\frac{2}{11}$ min. past 7
(c) $5\frac{3}{11}$ min. past 7 (d) $5\frac{5}{11}$ min. past 7
60. At what time between 4 and 5 O'clock will the hands of a watch point in opposite directions
- (a) 45 min. past 4
(b) 40 min. past 4
(c) $50\frac{4}{11}$ min. past 4
(d) $54\frac{6}{11}$ min. past 4
61. The value of ${}^{75}P_2$ is
- (a) 2775 (b) 150
(c) 5550 (d) None of these
62. In how many ways can the letters of the word 'LEADER' be arranged?
- (a) 72 (b) 144
(c) 360 (d) 720
63. How many word can be formed by using all the letters of the word 'ALLAHABAD'?
- (a) 3780 (b) 1890
(c) 7560 (d) 2520
64. How many words can be formed from the letters of the word 'SIGNATURE' so that the vowels always come together?
- (a) 720 (b) 1440
(c) 2880 (d) 17280

65. In how many ways a committee, consisting of 5 men and 6 women can be formed from 8 men and 10 women?
- (a) 266 (b) 5040
(c) 11760 (d) 86400
66. In how many different ways can the letters of the word 'RUMOUR' be arranged?
- (a) 180 (b) 90
(c) 30 (d) 720
67. Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
- (a) 210
(b) 1050
(c) 25200
(d) 21400
68. Three unbiased coins are tossed. What is the probability of getting at least 2 heads?
- (a) $\frac{1}{4}$ (b) $\frac{1}{2}$
(c) $\frac{1}{3}$ (d) $\frac{1}{8}$
69. In a single throw of a die, what is the probability of getting a number greater than 4?
- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
(c) $\frac{2}{3}$ (d) $\frac{1}{4}$
70. What is the probability of getting a sum 9 from two throws of a dice?
- (a) $\frac{1}{6}$ (b) $\frac{1}{8}$
(c) $\frac{1}{9}$ (d) $\frac{1}{12}$

71. In a simultaneous throw of two dice, what is the probability of getting a total of 10 or 11?

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

(b) $\frac{1}{6}$

(c) $\frac{7}{12}$

(d) $\frac{5}{36}$

72. A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is

(a) $\frac{1}{13}$

(b) $\frac{2}{13}$

(c) $\frac{1}{26}$

(d) $\frac{1}{52}$

73. The probability that a card drawn from a pack of 52 cards will be a diamond or a king is

(a) $\frac{2}{13}$

(b) $\frac{4}{13}$

(c) $\frac{1}{13}$

(d) $\frac{1}{52}$

74. A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?

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

(b) $\frac{4}{7}$

(c) $\frac{1}{8}$

(d) $\frac{3}{7}$

75. Two dice are tossed. The probability that the total score is a Prime number is

(a) $\frac{1}{6}$

(b) $\frac{5}{12}$

(c) $\frac{1}{2}$

(d) $\frac{7}{9}$