

S.No. 5640

(For candidates admitted from 2016–2017 onwards)

U.G. DEGREE EXAMINATION, APRIL 2022.

Part IV — Mathematics — Non-Major Elective

QUANTITATIVE APTITUDE — II

Maximum : 75 marks

Time : Three hours

Answer ALL questions.

Multiple choice questions :

(75 × 1 = 75)

1. A man completes $\frac{5}{8}$ of a job in 10 days. At this rate, how many more days will it take him to finish the job?

(a) 5 (b) 6
(c) 7 (d) $7\frac{1}{2}$

2. 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

3. If 8 men can reap 80 hectares in 24 days, then how many hectares can 36 men reap in 30 days?

(a) 350 (b) 400
(c) 425 (d) 450

4. If 18 binders bind 900 books in 10 days, how many binders will be required to bind 660 books in 12 days?

(a) 22 (b) 14
(c) 13 (d) 11

5. If 20 men can build a wall 56 meters long in 6 days, what length of a similar wall can be built by 35 men in 3 days?

(a) 49 (b) 94
(c) 48 (d) 47

6. A and B together can complete a piece of work in 4 days. If A alone can complete the same work in 12 days, in how many days can B alone complete that work?
- (a) 6 (b) 5
(c) 4 (d) 3
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 job together in 7 days. A is $1\frac{3}{4}$ times as efficient as B. The same job can be done by A alone in
- (a) $9\frac{1}{3}$ days (b) 11 days
(c) $12\frac{1}{4}$ days (d) $16\frac{1}{3}$ days
9. A sum of money is sufficient to pay A's wages for 21 days and B's wages for 28 days. The same money is sufficient to pay the wages of both for
- (a) 12 days (b) $12\frac{1}{4}$ days
(c) 14 days (d) $24\frac{1}{2}$ days
10. 5 men and 2 boys working together can do four times as much work as a man and a boy working capacities of a woman and a boy are in the ratio
- (a) 1 : 2 (b) 2 : 1
(c) 1 : 3 (d) 3 : 1
11. Two pipes A and B can fill a tank in 36 hours and 45 hours respectively. If both the pipes are opened simultaneously how much time will be taken to fill the tank?
- (a) 20 hours (b) 16 hours
(c) 21 hours (d) 15 hours

12. Two pipes A and B can fill a tank in 20 and 30 minutes respectively. If both the pipes are used together, then how long will it take to fill the tank?
- (a) 12 min (b) 15 min
(c) 25 min (d) 50 min
13. Pipes A and B can fill a tank in 5 and 6 hours respectively pipe C can empty it in 12 hours. If all the three pipes are opened together, then the tank will be filled in
- (a) $1\frac{13}{17}$ hours (b) $2\frac{8}{11}$ hours
(c) $3\frac{9}{17}$ hours (d) $4\frac{1}{2}$ hours
14. 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) $4\frac{1}{2}$ hrs (b) 9 hrs
(c) 8 hrs (d) 14 hrs
15. 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) $5\frac{1}{2}$
16. A sum of Rs. 800 amounts to Rs.920 in 3 years at simple interest. If the interest rate is increased by 3% it would amount to how much?
- (a) 992 (b) 994
(c) 982 (d) 984
17. The simple interest at $x\%$ for x years will be Rs. x on a sum of
- (a) Rs. x (b) Rs $\left[\frac{100}{x}\right]$
(c) Rs. $100x$ (d) Rs $\left[\frac{100}{x^2}\right]$

18. The rate at which a sum becomes four times of itself in 15 years at S.I. will be

- (a) 15% (b) $17\frac{1}{2}\%$
(c) 20% (d) 25%

19. Two equal sums of money were lent at simple interest at 11% p.a. for $3\frac{1}{2}$ years and $4\frac{1}{2}$ years respectively. If the difference in interest for two periods was Rs. 412.50 then each sum is

- (a) Rs. 3250 (b) Rs. 3500
(c) Rs. 3750 (d) Rs. 4250

20. What annual payment will discharge a debt of Rs. 6450 due in 4 years at 5% simple interest?

- (a) Rs. 1400 (b) Rs. 1500
(c) Rs. 1550 (d) Rs. 1600

21. A man invested $\frac{1}{3}$ of his capital at 7%, $\frac{1}{4}$ at 8% and the remainder at 10%. If his annual income is Rs. 561, the capital is

- (a) Rs. 5400 (b) Rs. 6000
(c) Rs. 6600 (d) Rs. 7200

22. In what time will Rs. 1000 become Rs. 1331 at 10% per annum compounded annually?

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

23. What will be the compound interest on a sum of Rs. 25,000 after 3 years at the rate of 12 P.C.p.a?

- (a) Rs. 9000.30 (b) Rs. 9720
(c) Rs. 10123.20 (d) Rs. 10483.20

24. What will be the difference between simple and compound interest @10% per annum on a sum of Rs. 1000 after 4 years?

- (a) Rs. 31 (b) Rs. 32.10
(c) Rs. 3.75 (d) Rs. 64.10

25. The effective annual rate of interest corresponding to a nominal rate of 6% per annum payable half yearly is
- (a) 6.06% (b) 6.07%
(c) 6.08% (d) 6.09%
26. If a sum in compound interest becomes three times in 4 years, then with the same interest rate, the sum will become 27 times in
- (a) 8 years (b) 12 years
(c) 24 years (d) 36 years
27. A man invests in a 16% stock at 128. The interest obtained by him is
- (a) 8% (b) 12%
(c) 12.5% (d) 16%
28. 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
29. The market value of a 10.5% stock, in which an income of Rs. 756 is derived by investing Rs. 9000, brokerage being $\frac{1}{4}\%$ is
- (a) Rs. 108.25 (b) Rs. 112.20
(c) Rs. 124.75 (d) Rs. 125.25
30. Which is better investment 12% stock at par with an income tax at the rate of 5 paise per rupee or $14\frac{2}{7}\%$ stock at 120 free from income tax?
- (a) 12% stock
(b) $14\frac{2}{7}\%$ stock
(c) Both are equally good
(d) Cannot be compared
31. 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

32. A train covers a distance of 10km in 12 minutes. If its speed is decreased by 5km/hr the time taken by it to cover the same distance will be
- (a) 10 min (b) 11 min 20 sec
(c) 13 min (d) 13 min 20 sec
33. Mae travels from A to B a distance of 250 miles in $5\frac{1}{2}$ hours he returns to A in 4 hours 30 minutes. His average speed is
- (a) 44 mph (b) 46 mph
(c) 48 mph (d) 50 mph
34. A car travelling with $\frac{5}{7}$ of its actual speed covers 42 km in 1hr 40 min 48 sec. find the actual speed of the car.
- (a) $17\frac{6}{7}$ km/hr (b) 25 km/hr
(c) 30 km/hr (d) 35 km/hr
35. 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?
- (a) 9 (b) 10
(c) 12 (d) 20
36. A train 150 m long is running with a speed of 68kmph. In what time will it pass a man who is running at 8 kmph in the same direction in which the train is going?
- (a) 9 sec (b) 8 sec
(c) 10 sec (d) 7 sec
37. 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
38. A train speed past a pole in 15 seconds and a platform 100 m long in 25 second its length is
- (a) 50 m (b) 150 m
(c) 200 m (d) Data inadequate

39. A train 108 m long moving at a speed of 50 km/hr crosses a train 112 m long coming from opposite direction in 6 second. The speed of the second train is
- (a) 48 km/hr (b) 54 km/hr
(c) 66 km/hr (d) 82 km/hr
40. A train takes 18 second to pass completely through a station 162 m long and 15 seconds through another station 120 m long. The length of the train is
- (a) 70 m (b) 80 m
(c) 90 m (d) 100 m
41. A man can row $7\frac{1}{2}$ kmph in still water. If in a river running at 1.5 km an hour, it taken him 50 minutes to row to a place and back how far off is the place?
- (a) 3 km (b) 4 km
(c) 2 km (d) 5 km
42. A man can row upstream at 8 kmph and downstream at 13 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
43. The speed of a boat in still water is 15 km/hr and the rate of current is 3km/hr the distance travelled downstream in 12 minutes is
- (a) 1.2 km (b) 1.8 km
(c) 2.4 km (d) 3.6 km
44. The speed of a boat in still water is 10 km/hr. If it can travel 26 km downstream and 14 km upstream in the same time, the speed of the stream is
- (a) 2 km/hr (b) 2.5 km/hr
(c) 3 km/hr (d) 4 km/hr
45. A man can row three quarters of a kilometre against the stream in $11\frac{1}{4}$ minutes. The speed (in km/hr) of the man in still water
- (a) 2 (b) 3
(c) 4 (d) 5

46. Find the area of a square on of whose diagonals is 3.8m long.
 (a) 7.22 m^2 (b) 7.33 m^2
 (c) 7.11 m^2 (d) 7.44 m^2
47. Find the ratio of the areas of the in circle and circumcircle of a square.
 (a) $1 : 2$ (b) $1 : 3$
 (c) $3 : 1$ (d) $2 : 1$
48. A rectangular plot is half as long again as it is broad and its area is $\frac{2}{3}$ hectares. Then its length is
 (a) 100 m (b) 33.33 m
 (c) 66.66 m (d) 44.44 m
49. The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is
 (a) 40% (b) 42%
 (c) 44% (d) 46%
50. The height of an equilateral triangle is 10cm. Its area is
 (a) $\frac{100}{3} \text{ cm}^2$ (b) 30 cm^3
 (c) 100 cm^2 (d) $\frac{100}{\sqrt{3}} \text{ cm}^2$
51. The surface area of a cube is 1734 sq. cm. Find its volume
 (a) 4913 cm^3 (b) 4912 cm^3
 (c) 4914 cm^3 (d) 4915 cm^3
52. The capacity of a tank of dimensions $(8\text{m} \times 6\text{m} \times 2.5\text{m})$ is
 (a) 120 litres (b) 1200 litres
 (c) 12000 litres (d) 120000 litres
53. The surface area of a cube is 600 cm^2 . The length of its diagonal is
 (a) $\frac{10}{\sqrt{3}} \text{ cm}$ (b) $\frac{10}{\sqrt{2}} \text{ cm}$
 (c) $10\sqrt{2} \text{ cm}$ (d) $10\sqrt{3} \text{ cm}$

54. If the volume of two cubes are in the ratio 27: 1, the ratio of their edges is
 (a) 1 : 3 (b) 1 : 27
 (c) 3 : 1 (d) 27 : 1
55. The total surface area of a solid hemisphere of diameter 14 cm is
 (a) 308 cm² (b) 462 cm²
 (c) 1232 cm² (d) 1848 cm²
56. At what time between 5 and 6 O'clock are the hands of a clock 3 minutes apart?
 (a) $31\frac{5}{11}$ min past 5 (b) 31 min
 (c) 32 min (d) $32\frac{5}{11}$ min
57. At what time between 2 and 3 O'clock will the hands of a clock be together?
 (a) $10\frac{10}{11}$ min past 2
 (b) 10 min
 (c) 11 min
 (d) $11\frac{11}{10}$ min
58. At what time between 9 and 10 O'clock will the hands of a watch be together?
 (a) 45 min past 9 (b) 50 min past 9
 (c) $49\frac{1}{11}$ min past 9 (d) $48\frac{2}{11}$ min past 9
59. At 3.40, the hour hand and the minute hand of a clock form an angle of
 (a) 120° (b) 125°
 (c) 130° (d) 135°
60. How many times are the hands of a clock at right angle in a day
 (a) 22 (b) 24
 (c) 44 (d) 48

61. Find the value of (i) ${}^{60}P_3$ (ii) 4P_4
- (a) (i) 205320 (ii) 24
 (b) (i) 205321 (ii) 25
 (c) (i) 205322 (ii) 26
 (d) (i) 205323 (ii) 27
62. How many words can be formed from the letters of the word 'EXTRA' so that the vowels are never together?
- (a) 72 (b) 74
 (c) 82 (d) 84
63. The value of ${}^{75}P_2$ is
- (a) 2775 (b) 150
 (c) 5550 (d) None of these
64. In how many different ways can the letters of the word 'RUMOUR' be arranged
- (a) 180 (b) 90
 (c) 30 (d) 720
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 "JUDGE" be arranged in such a way that the vowels always come together?
- (a) 48 (b) 120
 (c) 124 (d) 160
67. How many 3 digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9 which are divisible by 5 and none of the digit is repeated?
- (a) 5 (b) 10
 (c) 15 (d) 20

68. Two unbiased coins are tossed. What is the probability of getting at most one head?
- (a) $\frac{3}{4}$ (b) $\frac{4}{3}$
(c) $\frac{2}{3}$ (d) $\frac{3}{2}$
69. 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) $\frac{1}{12}$
70. Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even?
- (a) $\frac{1}{2}$ (b) $\frac{3}{4}$
(c) $\frac{3}{8}$ (d) $\frac{5}{16}$
71. Two cards are drawn from a pack of 52 cards. The probability that either both are red or both are kings is:
- (a) $\frac{7}{13}$ (b) $\frac{3}{26}$
(c) $\frac{63}{221}$ (d) $\frac{55}{221}$
72. 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) $\frac{3}{7}$
73. A box contains 10 black and 10 white balls. The probability of drawing two balls of the same colour is
- (a) $\frac{9}{19}$ (b) $\frac{9}{38}$
(c) $\frac{10}{19}$ (d) $\frac{5}{19}$

74. 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) $\frac{7}{9}$

75. 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) $\frac{1}{52}$
