A.D.M.COLLEGE FOR WOMEN, NAGAPATTINAM
(AUTONOMOUS)
UG Degree Examination – Extra Credit I
I Semester – November 2022
EC I – PROBLEM SOLVING SKILLS I

Time: 3 hours   **Maximum Marks: 100**

Section –A   **50 X 1.5 = 75**

Answer **ALL** the Questions:

1. If n is any positive integer, then ($3^{4n} - 4^{3n}$) is always divisible by ___

(a) 7   (b) 17   (c) 112   (d) 145

2. How many numbers between 200 and 600 are divisible by 4, 5 and 6?

(a) 5   (b) 9   (c) 7   (d) 8

3. The sum $1 + 3 + 5 + 7 \ldots .+ 25$ is

(a) 650   (b) 625   (c) 325   (d) 169

4. Which is the smallest fraction? $\dfrac{3}{4}, \dfrac{5}{6}, \dfrac{7}{8}, \dfrac{7}{9}$

(a) $\dfrac{5}{6}$ (b) $\dfrac{7}{8}$ (c) $\dfrac{7}{9}$ (d) $\dfrac{3}{4}$

5. The square of an odd natural number greater than 1 is divided by 8, the remainder will always be

(a) 1   (b) 3   (c) 7   (d) Data inadequate

6. A number exceeds its three-fifth by 14. What is the number?

(a) $23\dfrac{1}{5}$ (b) 70   (c) 35   (d) 40

7. If two-third of three-fifths of one-fourth of a number is 34, what is 20% of that number?

(a) 51   (b) 68   (c) 102   (d) 72   (e) None of these

8. If two numbers are in the ratio 7 : 9 and the greater number is 45, the smaller number will be

(a) 30   (b) 45   (c) 35   (d) 55

9. If $\sqrt{86}$ when approximated to one place of decimal is 9.3, then the value of $\sqrt{\dfrac{43}{2}}$ up to one place of decimal is

(a) 18.6   (b) 4.63   (c) 4.6   (d) 4.636

10. If $\sqrt{3^n} = 81$, then n = ?

(a) 2   (b) 4   (c) 6   (d) 8

11. The least number, which when decreases by 6 is exactly divisible by 33, 21, 35 and 55, is

(a) 1116   (b) 1161   (c) 1611   (d) 6111

12. What is the greatest number of three digits which when divided by 6, 9 and 12, leaves a remainder of 3 in each case?

(a) 975   (b) 996   (c) 939   (d) 903

13. The product of two numbers is 2160 and their H.C.F. is 12. How many such pairs of numbers are possible?

(a) 1   (b) 3   (c) 2   (d) 4

14. If the sum of the number is 216 and their H.C.F. is 27, then the numbers are

(a) 27 and 189   (b) 54 and 162   (c) 108 and 180
(d) 81 and 189

15. L.C.M. of $\dfrac{2}{7}, \dfrac{3}{14}$ and $\dfrac{5}{3}$ is

(a) 45   (b) 35   (c) 25   (d) 30

16. How many numbers lying between 200 and 600 are divisible by 4, 5 and 6 ?

(a) 5   (b) 6   (c) 7   (d) 8

17. The sum of the two numbers is 192 and their H.C.F. is 24. The number of pairs of numbers satisfying the above condition is

(a) 2   (b) 5   (c) 4   (d) 6

18. What is the H.C.F. of $\dfrac{9}{10}, \dfrac{12}{25}, \dfrac{18}{35}$ and $\dfrac{21}{40}$?

(a) 3/5   (b) 252/5   (c) 3/2800   (d) 63/700

19. Find the L.C.M. of $\dfrac{2}{3}, \dfrac{3}{5}, \dfrac{4}{7}, \dfrac{9}{13}$ is

(a) 36   (b) 1/36   (c) 1/1365   (d) 12/455

20. The traffic lights at three different road crossings change after every 48 sec, 72 sec, and 108 sec respectively. If they all change simultaneously at 9 : 30 : 00 hours, then they will again change simultaneously at

(a) 9 : 37 : 12 hours   (b) 8 : 27 : 48 hours   (c) 8 : 27 : 36 hours

(d) 8 : 37 : 12 hrs

21. $33.09 + ? = 102.74 - 38.04$

(a) 64.70   (b) 21.61   (c) 31.61   (d) 97.79

(e) None of these

22. $142.362 + 217.78 + ? = 453.072$

(a) 93.93   (b) 92.93   (c) 75.418   (d) 192.93

(e) None of these

23. $\dfrac{1}{3 - \dfrac{1}{2 - \dfrac{1}{5}}} = ?$

(a) 5/31   (b) 7/25   (c) 9/22   (d) 3/11

24. $99 \times 14 + 11 + 0.7 = ?$

(a) 1.8   (b) 18   (c) 180   (d) 1800

25. 0.11 x 11 x 0.011 = ?

(a) 1.331   (b) 133.1   (c) 0.1331   (d) 0.01331

26. 3725.69 + 5.03 x 3084.9 + ? = 25.025.86

(a) 2500   (b) 2800   (c) 2700   (d) 5875

27. $\dfrac{46+18\times6+4}{12\times12+8\times12} = ?$

(a) 20/57   (b) 113/912   (c) 113/120   (d) 79/130

28. $2412 \div 12 + 24 = ?$

(a) 8.375   (b) 225   (c) 67   (d) 201

29. $\dfrac{\sqrt{484}}{?} + 14 = 25$

(a) 12   (b) 14   (c) 22   (d) None of these

30. $5\dfrac{1}{3} + 3\dfrac{1}{2} - 4\dfrac{1}{4} = ?$

(a) $4\dfrac{3}{4}$ (b) $5\dfrac{1}{12}$ (c) $4\dfrac{1}{2}$ (d) None of these

31. If 8% of a is the same as 4% of b, then 20% of a is the same as

(a) 16% of b   (b) 80% of b   (c) 10% of b   (d) 25% of b

32. A's salary is 20% less than B's salary. How much per cent is B's salary greater than A?

(a) 15%   (b) 20%   (c) 25%   (d) 30%

33. The population of a town increases 5% annually. If its present population is 8400, what will it be in 2 years?

(a) 87690   (b) 97680   (c) 92610

(d) None of these

34. The population of a town increases at the rate of 5% every year. The present population is 8000, when will it be 9261 ?

(a) 2 years   (b) 4 years   (c) 6 years   (d) 3 years

35. A person's salary is reduced by 12%. If he originally used to receive Rs.600, his present salary is

(a) Rs.526   (b) Rs.518   (c) Rs.528   (d) Rs.538

36. 331/3 % of a man's daily output is equal to 50% of a second man's daily output. If the second man turns out 1500 screws daily, then the first man's output in terms of making screws is

(a) 1000   (b) 500   (c) 2000   (d) 2250

37. The price of jute has been reduces by 20%. If the reduced price is Rs.800 per quintal, the original price per quintal was

(a) Rs. 900   (b) Rs. 640   (c) Rs. 960   (d) Rs.1,000

38. A's salary is 20% less than B's salary. By how much per cent is B's salary more than A's?

(a) $16\dfrac{2}{3}$ (b) 20   (c) 25   (d) $33\dfrac{1}{3}$

39. If X is 90% of Y, what per cent of X is Y ?

(a) 190%   (b) 101.1%   (c) 90%   (d) 111.1%

40. If the side of a square is increased by 25%, then how much percentage does its area get increased?

(a) 50   (b) 125   (c) 56.25   (d) 156.25

41. A man's gain after selling 33 metre of cloth is equal to selling price of 11 metre of cloth. In this case, the gain is

(a) 50%   (b) 20%   (c) 70%   (d) 30%

42. By selling five pens for Rs.42, a shopkeeper gains 5 per cent. To earn a profit of 7.5 per cent he should sell eight pens for

(a) Rs.68.80   (b) Rs.68   (c) Rs.66   (d) Rs.70.80

43. The cost price of an article, which on being sold at a gain of 12% yields Rs.6 more than when it sold at a loss of 12%, is

(a) Rs.24   (b) Rs.25   (c) Rs.30   (d) Rs.20

44. What price should a shopkeeper mark on an article, costing him Rs.153, to gain 20% after allowing a discount of 15%?

(a) Rs.162   (b) Rs.184   (c) Rs.216   (d) Rs.224

45. A shopkeeper bought an article for Rs. 319.60. Approximately at what price should he sell the article to make 25 per cent profit?

(a) Rs.500   (b) Rs.450   (c) Rs.600   (d) Rs.400

46. A dishonest shopkeeper professes to sell pulses at his cost price. But he uses a false weight of 950 g for a kilogram. His gain is

(a) 6%   (b) 5.2%   (c) 5%   (d) 6.5%

47. 400 mangoes were bought at Rs.125 per hundred and were sold for a profit of Rs.100. The selling price per dozen was

(a) Rs.16   (b) Rs.15   (c) Rs. 18   (d) Rs.20

48. The difference in selling a coat at profits of 4% and 6% is Rs.12. The cost price of the

(a) 300   (b) 150   (c) 450   (d) 600

49. A cycle was purchased for Rs. 750. If it is sold with a profit of 16%, then its selling price is

(a) Rs.630   (b) Rs.650   (c) Rs.850   (d) Rs.870

50. Ram sold two bicycles, each for Rs.990. if he made 10 per cent profit on the first and 10 per cent loss on the second. What is the total cost price?

(a) Rs.2000   (b) Rs.1980   (c) Rs.891   (d) Rs.1089

ANSWER ANY FIVE QUESTIONS

51. (i) If 30 x 0103 is divisible by 11, then find the value of x.

(ii) It is given that $2^{32} + 1$ is exactly divisible by a certain number. Which one of the following is also divisible by the same number?

52. One pendulum ticks 57 times in 58 seconds and another 608 times in 609 seconds. If they start together, find the number of times they will tick together in the first hour.

53. (i) $\dfrac{6 \times 24 - 12 \times 2}{18 \times 7 - 6} = ?$ (ii) $3\dfrac{3}{4} + 2\dfrac{1}{2} + \dfrac{1}{2} = ?$

54. In an examination, 70% of the candidates passed in English, 65% in Mathematics, 27% failed in both subjects. Find the pass percentage.

55. The population of a town is 35000. If the number of men increases by 6% and the number of women increases by 4%, the population after one year will be 36760. Find the number of men in the town.

56. Ghee bought at Rs.65 per kg is mixed with vegetable oil costing Rs.45. If 5 kg of ghee is mixed with 3 kg of vegetable oil and resulting mixture is sold at Rs.60 per kg, what will be the profit?

57. A manufacturer sold an article at a profit of 4% to a wholesaler. The wholesaler sold the same at 5% profit to retailer. If the retailer paid Rs.273 for the article, then find the cost price of manufacturer.

58. (i) If two-third of three-fifths of one-fourth of a number is 34, what is 20% of that number?

(ii) If $\dfrac{x}{y}=\dfrac{a}{b}=\dfrac{c}{d}=\dfrac{2}{3}$, find the value for $\dfrac{2x+3a+5c}{2y+3b+5d}$.