SERIES: B

QP CODE: 24900176
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Reg No:.....

Name:.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

FIRST SEMESTER MGU-UGP (HONOURS) REGULAR EXAMINATION NOVEMBER 2024

First Semester

Multi-Disciplinary Course - MG1MDCMAT100 - MATHEMATICS FOR COMPETITIVE EXAMINATIONS

(2024 ADMISSION ONWARDS)

Duration: 1 Hours

Maximum Marks: 50

Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Interest (I), Appreciation (Ap), and Skill (S)

Students should attempt atleast one question from each course outcome to enhance their overall outcome attainability.

[Learning Domain][CO No(s)]

Part A

Multiple Choice Questions
Answer any ten questions
Each question carries 2 marks

1 A trip to a destination is made in the following way : 900 km by train at an average speed of 60 km/hr, 3000 km by plane at an average speed of 500 km/hr, 400 km by boat at an average speed of 25 km/hr, 15 km by taxi at an average speed of 45 km/hr. What is the average speed for the entire journey? [A] [4]

a) $105\frac{65}{112}$

b) $110\frac{65}{112}$

c) $115\frac{65}{112}$

d) $120\frac{60}{115}$

2 A train travels 82.6 km/hr. How many metres will it travel in 15 minutes? [A] [4]

a) 20650 m

b) 20645 m

c) 20640 m

d) 20635 m

SERIES: B

3 What was the day of the week on 15 August 1947 ? [U] [3]

a) Thursday b) Friday

c) Monday d) Saturday

4 What is the square root of 6084 ? [U] [1]

a) 78 b) 62

c) 72 d) 68

5 0.2% can be expressed as the decimal [U] [2]

a) 0.2 b) 0.002

c) 0.02 d) 2.0

6 Find the H.C.F of $2^2 \times 3^3 \times 5 \times 7^2$, $2^3 \times 5^2 \times 7^4$, $2 \times 3^5 \times 7 \times 11$ [U] [1]

a) 210 b) 2310

c) 14 d) 6

7 The ages of Shakhi and Kanti are in the ratio of 8:7 respectively. After 10 years, the ratio of their ages will be 13:12 . What is the difference between their ages? [A] [2]

a) 4 years b) 8 years

c) 6 years d) 2 years

8 Simplify $1200 + 568 \div 8 - 35 = ?$ [U] [1]

a) 1352 b) 1458

c) 1294 d) 1236

9 By selling an article for Rs.100, a man gains Rs.15. Then find his gain %? [K] [2]

a) 15% b) $12\frac{2}{3}\%$

c) $17\frac{11}{17}\%$ d) $17\frac{1}{4}\%$

10 If the principal is Rs. 2000 , the interest rate is 5 % per annum and the time period is 3 years, what is the simple interest? [A] [3]

a) Rs. 400 b) Rs. 300

c) Rs. 270 d) Rs. 350

11 Find the cost of Rs. 4500 , 8.5 % stock at 4 premium. [A] [4]

a) Rs. 4680 b) Rs. 4650

c) Rs. 4689 d) Rs. 4646

12 Which of the following is a prime number? [E] [1]

a) 4 b) 9

c) 8 d) 3

13 If Roger can do a piece of work in 8 days and Antony complete the same work in 5 days, in how many days will both of them together complete it? [K] [4]

a) $\frac{13}{40}$ b) $\frac{8}{13}$

c) $\frac{40}{13}$ d) $\frac{13}{8}$

14 The monthly income of a person was rupee 50000 . Next year, his income increased by 14 % . What is the increased income in rupees? [A] [2]

a) 57000 b) 7000

c) 59000 d) 9000

15 A box weighs 4.5 kg, and another box weighs 750 grams. What is the ratio of their weights? [E] [2]

a) 5:1 b) 1:5

c) 6:1 d) 3:2

$(10 \times 2 = 20)$

Part B

Multiple Choice Questions
Answer any ten questions
Each question carries 3 marks

16 The difference between the ages of two men is 10 years. 15 years ago, the elder one was twice as old as the younger one. The present age of elder man is [An] [2]

a) 40 years b) 35 years

c) 25 years d) 30 years

17 If the rate of interest is 4 % per annum for first year, 5 % per annum for second year and 6 % per annum for third year, then the compound interest [A] [3]

of Rs. 10000 for 3 years will be

a) Rs. 1600 b) Rs. 1175.20

c) Rs. 2010 d) Rs. 1575.20

18 Which of the following is equal to 3.14×10^6 [K] [1]

a) 3140000 b) None of these

c) 3140 d) 314

19 If $(a - b) = 4$ *and* $ab = 2$, *then* $a^2 + b^2 =$? [U] [1]

a) None of these b) 25

c) 18 d) 20

20 Sanju and Surya can do a piece of work in 8 days. Surya and Rahul together can do it in 12 days. If Sanju is thrice as good as Rahul in working, find in what time Surya alone can do the work? [K] [4]

a) 24 b) 16

c) 48 d) 36

21 A can do a piece of work in 10 days and B in 20 days. They work together but 2 days before the completion of the work A leaves. In how many days was the work completed? [U] [4]

a) 10 b) 9

c) 6 d) 8

22 What should be subtracted from 15, 28, 20 and 38 so that the remaining numbers may be proportional? [E] [2]

a) 4 b) 5

c) 2 d) 3

23 What will be the compound interest on Rs. 5000 for 2 years at 8 % per annum? [A] [3]

a) Rs. 806 b) Rs. 832

c) Rs. 624 d) Rs. 616

24 Let the population of a town be P now and suppose it increases at the rate of R % per annum, then what is the Population after n years? [K] [2]

a) $P[\frac{R}{100}]^n$ b) $\frac{P}{(1+\frac{R}{100})^n}$

c) $P[1+\frac{R}{100}]^n$ d) $(1+\frac{R}{100})^n$

25 A dishonest dealer professes to sell his goods at cost price but uses a weight of 950 gms for 1 kg weight. What is his gain percent? [U] [2]

a) 10 % b) 6 %

c) $7\frac{5}{19}\%$ d) $5\frac{5}{19}\%$

26 The lowest term of $\frac{391}{667}$ is [U] [1]

a) $\frac{7}{19}$ b) $\frac{17}{29}$

c) $\frac{13}{29}$ d) $\frac{11}{19}$

27 The salary of a person was reduced by 10 % . By what percent should his reduced salary be raised so as to bring it at par with his original salary? [E] [2]

a) $\frac{1}{9}$ b) $\frac{9}{100}$

c) $\frac{100}{9}$ d) $\frac{10}{9}$

28 The H.C.F. of 0.54, 1.8 and 7.2 is [U] [1]

a) 1.8 b) 18

c) 0.18 d) 0.018

29 Find the annual income derived from Rs. 2500 , 8 % stock at 106 . [A] [4]

a) Rs. 208 b) Rs. 250

c) Rs. 200 d) Rs. 258

30 The average speed of a bus is one-third of the speed of a train. The train covers 1125 km in 15 hours. How much distance will the bus cover in 36 minutes? [A] [4]

a) 15 km b) 18 km

c) 12 km d) 21 km

(10 × 3 = 30)

END OF THE QUESTION PAPER

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