

Reg. No. :

Name :

Fifth Semester B.A./B.Sc./B.Com. Degree Examination, December 2021.

First Degree Programme under CBCSS

Mathematics

Open Course

MM 1551.3 – BASIC MATHEMATICS

(2018 & 2019 Admission)

Time : 3 Hours

Max. Marks : 80

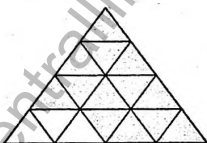
I. Answer **all ten** questions. These questions carry **1** mark each

1. Determine the place value of 2 in 417,216,900.
2. Find $45+57$.
3. State commutative property of addition.
4. Identify the numerator and denominator of the fraction $\frac{3}{5}$.
5. Define Least Common Multiple (LCM).
6. What is a decimal fraction?
7. Round 4.81542 to the thousandths place.
8. In an algebra class there are 15 women and 17 men. Write the ratio of women to men.

9. What is pictograph?
10. What is a circle graph?

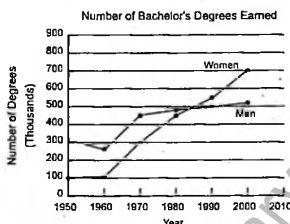
(10 × 1 = 10 Marks)

- II. Answer **any eight** questions from among questions **11 to 26**. These questions carry **2** marks each
11. Simplify the expression $48 \div 8$. Identify the dividend, divisor, and quotient.
12. State any two properties of division.
13. Evaluate 5^3 .
14. Simplify $36 + (7^2 - 3)$.
15. Write a fraction for the shaded portion and for the unshaded portion of the following figure



16. Convert the mixed number $7\frac{1}{4}$ to an improper fraction.
17. Simplify $\frac{1}{3} + \frac{3}{5} \div \frac{9}{10}$
18. Find the LCM of 10, 15 and 8.
19. Jane Marie bought 8 cans of tennis balls for \$1.98 each. She paid \$1.03 in tax. What was the total bill?
20. Find $30.55 \div 13$.

21. The town of Roxbury, Connecticut, had 1825 people in the year 1990. By the year 2008, the U.S. Census Bureau projects its population to be 2441. Write a ratio depicting the increase in population to the number of people in the town in 1990.
22. A health club charges \$125 for 20 visits. Find the unit rate in dollars per visit.
23. The following figure shows the number of bachelor's degrees earned by men and women for selected years.

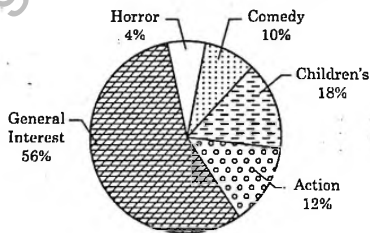


- (a) In 1950, who earned more bachelor's degrees, men or women?
- (b) In 2000, who earned more bachelor's degrees, men or women?
24. A small business employs five workers. Their yearly salaries are \$42,000 \$36,000 \$45,000 \$35,000 \$38,000. Find the mean yearly salary for the five employees.
25. What is the procedure to find the median of a list of numbers?
26. Find the probability of rolling a 5 or greater on a die.

(8 × 2 = 16 Marks)

- III. Answer **any six** questions from among questions **27 to 38**. These questions carry **4** marks each
27. Write the four steps of the order in which operations are to be performed?
28. A 5-speed Jeep Cherokee gets 23 mpg (miles per gallon) on the highway. How many gallons of gas would be required for a 667-mi drive from El Paso to Dallas?

29. Divide $\frac{82705}{602}$.
30. The population of Texas comprises roughly of the population of the United States. If the U.S. population is approximately 296,000,000, approximate the population of Texas.
31. Simplify $\left(\frac{3}{5} \div \frac{2}{15}\right)^2$.
32. Find $1\frac{2}{3} \div 6\left(\frac{3}{10}\right)$.
33. The Mona Lisa is perhaps the most famous painting in the world. It was painted by Leonardo da Vinci somewhere between 1503 and 1506 and now hangs in the Louvre in Paris, France. The dimensions of the painting are 30 in. by 20.875 in. What is the total area?
34. Round $45.\overline{45}$ to the hundredths place. Then use the rounded value to estimate whether the product $45.\overline{45} \times 1.1$ is close to 50.
35. Solve the proportion $\frac{0.8}{3.1} = \frac{4}{p}$.
36. On a sunny day, a 6-ft man casts a 3.2-ft shadow on the ground. At the same time, a building casts an 80-ft shadow. How tall is the building?
37. A certain video rental store carries 2000 different videos. It groups its video collection by the categories shown in the following graph.



- (a) How many videos are comedy?
- (b) How many videos are action or horror?

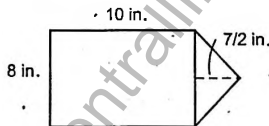
38. Find the indicated probability.

- (a) The probability of getting a winter cold is $\frac{3}{10}$. What is the probability of not getting a winter cold?
- (b) If the probability that a washing machine will break before the end of the warranty period is 0.0042, what is the probability that a washing machine will not break before the end of the warranty period?

(6 × 4 = 24 Marks)

IV. Answer **any two** questions from among questions 39 to 44. These questions carry **15** marks each

39. (a) Linda must drive from Clayton to Oakley. She can travel directly from Clayton to Oakley on a mountain road, but will only average 40 mph. On the route through Pearson, she travels on highways and can average 60 mph. Which route will take less time?
- (b) Find the total area of the following figure.



40. Carson estimates that his total cost for college for 1 year is \$12,600. He has financial aid to pay of the cost.
- (a) How much money is the financial aid worth?
- (b) How much money will Carson have to pay?
- (c) If Carson's parents help him by paying of the amount not paid by financial aid, how much money will be paid by Carson's parents?
41. Jason and Sara plan to paint a side of their house whose dimensions are given in the following figure.
- (a) How much area will they have to paint?
- (b) They want to string Christmas lights around the triangular portion of the house. What length is required for the string of lights?

42. (a) A negative for a photograph is 3.5 cm by 2.5 cm. If the width of the resulting picture is 4 in., what is the length of the picture?

(b) If a cable 25 ft long weighs 1.2 lb. how much will a 120-ft cable weigh?

(c) Convert $\frac{21}{31}$ to decimal form rounded off to hundredth place.

43. Explain each of the following with suitable examples and diagram.

(a) Bar graph

(b) Picto graph

(c) Line graph

44. Use the Gaussian elimination method to find x, y and z where

$$2x - y + 3z = 5$$

$$-4x - 2y - 3z = 8$$

$$3x + y - z = 4$$

(2 × 15 = 30 Marks)
