

**MILITARY COLLEGE MURREE**  
**ENTRANCE EXAMINATION.2013**  
**PAPER MATHEMATICS CLASS 8<sup>TH</sup>**

Time: 1 Hour	Total Marks: 100
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**Instructions**

- All questions are compulsory. **USE OF CALCULATOR IS NOT ALLOWED.**
- No marks will be awarded for **Q1** in case of cutting, overwriting or use of lead pencil.
- Failure to abide by the following instructions will result in disqualification of the candidate:
  - ✓ Roll number will only be written on the first page of answer sheet.
  - ✓ No identification mark e.g drawing, sticker, signature etc will be marked on answer sheet.
  - ✓ Examination centre will not be mentioned on the answer sheet.
  - ✓ All questions will be attempted on the answer sheet only.
  - ✓ Paper will be attempted with blue ink. Black marker may be used for headings only.

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- Q1 a. Fill in the blanks:- (5)
- (1)  $A' \cup A =$  \_\_\_\_\_
  - (2) \_\_\_\_\_ is called additive identity.
  - (3) The multiplicative inverse of -4 is \_\_\_\_\_.
  - (4) The \_\_\_\_\_ inverse of a rational number is its reciprocal.
  - (5) If  $x = y^2$ , then y is called the \_\_\_\_\_ of x.
- b. State TRUE or FALSE:- (5)
- (1)  $x^2 - x = x - x^2$  T/F
  - (2) The ratio between circumference and diameter of a circle is denoted by Greek symbol  $\pi$ . T/F
  - (3)  $5^3 \times 5^4 = 5^{12}$  T/F
  - (4) The circumference of a circle with radius  $\frac{7}{22}$  m is 3m. T/F
  - (5) The circular region of a cylinder are parallel to each other. T/F
- Q2 a. If  $A=\{a, c, e, g\}$ ,  $B=\{a, b, c, d\}$  and  $C=\{b, d, f, h\}$  than verify that:- (10)
- (i)  $A \cup (B \cap C) = (A \cup B) \cap C$
  - (ii)  $A \cap (B \cup C) = (A \cap B) \cup C$
- b. Prove that  $-\frac{4}{5} \times \left(\frac{1}{8} + \frac{11}{12}\right) = \left(-\frac{4}{5} \times \frac{1}{8}\right) + \left(-\frac{4}{5} \times \frac{11}{12}\right)$  (10)
- Q3 a. Find the square root of 0.4761 (7)
- b. Find the perimeter of a rectangular park whose length is three time of its width and the area is  $792.18 \text{ m}^2$ . Also calculate the cost of fencing at the rate of Rs.195/m. (10)
- Q.4 a. Aleem bought a television for Rs. 15,000 on 3 years installments at some markup rate per annum. After three years, he ended up paying Rs 20,400. Find the markup per annum Aleem agreed to pay. (10)
- b. Factorize  $2a^2 b + 4ab^2 - 2ab - 4b^2$  (8)
- Q5 The internal diameter of a round mosque is 31.5m and height of walls is 7m. Find the cost of cementing the round wall of the mosque at the rate of Rs.19/ $\text{m}^2$ . (10)

**GENERAL SCIENCE**

- Q6 a. Describe series and parallel circuits. Draw these circuits as well. (8)
- b. Name one observation that supports the Big Bang Theory. (4)
- c. List in order, the four stages in the life cycle of a low-mass star. (4)
- Q7 a. Define isotopes. Write down three uses of isotopes each in the fields of medicine and agriculture. (7)
- b. What are plastics? (2)