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MODEL PAPER 03 FOR FA – 1 (2016 – 17)

CLASS – IX

MATHEMATICS

T.T. 1:30 **M.M. 40**

General Instructions:

1. All questions are compulsory.
2. Question paper is divided into four sections: Section A contains 4 questions each carry 1 mark, Section B contains 4 questions each carry 2 marks, Section C contains 4 questions each carry 3 marks and Section D contains 4 questions each carry 4 marks.

SECTION – A

1. Rationalize the denominator : $\frac{5}{\sqrt{3}-\sqrt{5}}$

2. Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $x - 1$.

3. Find a zero of the polynomial $p(x) = 2x + 5$.

4. Simplify: $(64)^{\frac{2}{3}}$

SECTION – B

5. Rationalize the denominator of $\frac{3+5\sqrt{2}}{3-5\sqrt{2}}$.

6. Find five rational numbers between $\frac{-3}{5}$ and $\frac{2}{5}$

7. If k is the number of grapes packet distributed to poor children so that $x - 5$ is a factor of $4x^3 + 3x^2 - 4x - k$.. Find k. Which value depicted from this?

8. Factorize: $12x^2 - 7x + 1$

SECTION – C

9. Show that 0.47777777……. can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

10. If the work of Poor Handicapped Aid Society is represented by p(x) = $x^3 + 13x^2 + 32x + 20$ then factorize p(x). Which values depicted from this?

11. In below Fig. , if AC = BD, then prove that AB = CD

12. Find $p(0)$, $p(1)$ and $p(2)$ for each of the following polynomials:
(i) $p(y) = y^2 - y + 1$ (ii) $p(t) = 2 + t + 2t^2 - t^3$

SECTION – D

13. Simplify the following expressions:

$(i) 2^{\frac{2}{3}}.2^{\frac{1}{3}}$ $(ii) 11^{\frac{1}{4}} \div 11^{\frac{1}{2}}$ $(iii) 8^{\frac{1}{2}}.7^{\frac{1}{2}}$ $(iv) 13^{\frac{1}{5}}.17^{\frac{1}{5}}$

14. An officer has decided to donates 2 apples near house, 3 apples near temple and 5 apples near his office. Represent the real number $\sqrt{2}, \sqrt{3}, \sqrt{5}$ on a single number line. Which value you depicted from this?

15. How would you rewrite Euclid's fifth postulate so that it would be easier to understand? Does Euclid's fifth postulate imply the existence of parallel lines? Explain.

16. Use the Factor Theorem to determine whether $g(x)$ is a factor of $p(x)$ in each of the following cases:

(i) $p(x) = x^3 - 4x^2 + x + 6$, $g(x) = x - 3$

(ii) $p(x) = x^3 + 3x^2 + 3x + 1$, $g(x) = x + 2$