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MODEL PAPER 02 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 : $\frac{1}{7+3\sqrt{2}}$

2. Find the remainder obtained on dividing $p(x) = x3 + 1$ by $x + 1$.

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

4. Simplify: $(32)^{\frac{2}{5}}$

SECTION – B

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

6. Find five rational numbers between $\frac{-4}{7}$ and $\frac{3}{7}$

7. If k is the number of mangoes distributed to poor children so that $x - 6$ is a factor of $4x^3 + 3x^2 - 4x - k$. Find k. Which value depicted from this??

8. Factorize: $6x^2 + 17x + 5$

SECTION – C

9. Show that 0.2353535……. 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 Cancer Aid Society is represented by $p(x) = x^3 - 23x^2 + 142x - 120$ then factorize p(x). Which values depicted from this?

11. If A, B and C are three points on a line, and B lies between A and C (see below fig.), then prove that AB + BC = AC.

12. Find the value of each of the following polynomials at the indicated value of variables:

(i) $p(t) = 4t^4 + 5t^3 - t^2 + 6$ at $t = a$.

(ii) $q(y) = 3y^3 - 4y + 5$ at $y = 2$.

SECTION – D

13. Simplify the following expressions:

$(i) 2^{\frac{2}{3}}.2^{\frac{1}{3}} \quad (ii)\left(\frac{1}{3^5}\right)^4 \quad (iii)\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}} \quad (iv) 13^{\frac{1}{5}}.17^{\frac{1}{5}}$

14. A School has decided to give 2 prizes for punctuality, 3 prizes for honesty and 5 prizes for obedience. Represent the real number $\sqrt{2}, \sqrt{3}, \sqrt{5}$ on a single number line. Which value you prefer to be rewarded most and why?

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