Gurucharanam Saranam

SANTHIGIRI VIDYABHAVAN HIGHER SECONDARY SCHOOL

UNIT TEST - 1

DECEMBER 18, 2020

MATHEMATICS (SCIENCE)

H.S.E I

Time: $\frac{1}{2}$ hour

Maximum: 20 score

1. Express the complex number $\frac{3-\sqrt{-9}}{1-\sqrt{-4}}$ in the form a+ib.

2. Convert the complex number $\sqrt{3}-i$ into polar form.

(4)

3. Prove by the principle of mathematical induction that $\frac{1}{2}+\frac{1}{2^2}+\frac{1}{2^3}+\ldots+\frac{1}{2^n}=1-\frac{1}{2^n}$ (4)

4. Prove by the principle of mathematical induction that 5^n-3^n is divisible by 2

(5. Solve 24x < 100, when

i) x is a natural number.

ii) x is an integer.

(4)