MM 30 Time 1 hour 10 Min

Section A 1 mark each

Q1. Define Euclid's division Lemma.
Q2. Define Fundamental theorem of Arithmetic.
Q3. Define Euclid's division algorithm.
Q4. A number is called irrational if _____
Q5. Every rational number is real. Is every real number irrational? Give 2 examples.
Q6. Sum of two irrational numbers may be rational or irrational. What can you say about sum of two integers? Give two examples
Q7. Find HCF and LCM of $a^3b^2c^6d^9e^{11}$ and $f^{33}g^4a^5b^9c^{10}$

Section B 2 marks each

Q8. Use Euclid's division algorithm to find the H.C.F. of 196 and 38220
Q9. Find the H.C.F. of 12576 and 4052 and hence find their L.C.M.
Q10. Without actually performing the long division, state whether the following rational number has a terminating expansion or a non- terminating repeating decimal expansion: $\frac{6}{15}$
Q11. Use Euclid's Division Algorithm to show that the square of any positive integer is either of the form 3m or 3m+1 for some integer m.
Q12. Is (7×11×13+13) composite or prime.
Q13. Use Fundamental theorem of Arithmetic to find the H.C.F. and L.C.M. of 225, 336 and 360
Q14. Check whether 8^n can end with digit 0 where n is a positive integer.

Section C 3 marks each

Q15. Prove that $\sqrt{2}$ is an irrational number.
Q16. Is $1.00\overline{57}$ a pure recurring decimal or mixed recurring decimals. Express it in p/q form.
Q17. Show that any positive odd integer is of the form 4q+1 or 4q+3, where q is some integer.