MGF1107 Liberal Arts Mathematics II
Final Examination Topic Outline

1. Determine the difference between inductive and deductive reasoning.
2. Solve applications of inductive reasoning: recognizing number patterns
3. Carry out calculations, estimations and read graphs

4. Convert from/to Egyptian, Babylonian, Mayan and Roman numeration systems.
5. Expand/contract Hindu-Arabic [normal] numbers
6. Count objects in various bases
7. Write numbers in various bases in expanded notation
8. Change numbers from base *b* to base 10 [included binary, octal, etc.]
9. Change numbers from base 10 to base *b* [included binary, octal, etc.]
10. Convert to binary and ASCII code
11. Solve associated applications

12. Determine whether a given set with a given operation is closed
13. Recognize/distinguish the commutative, associative, distributive, and other properties
14. Determine whether a number is prime or composite
15. Determine whether one number divides another number
16. Find the prime factorization of a number
17. Find the least common multiple/greatest common factor of a set of numbers
18. Determine whether a given number is perfect, deficient, abundant, amicable [any or all of these]
19. Encode/decode simple phrases
20. Recognize the value of the Golden Ratio and the symbol used to identify it (φ)
21. Find successive values of a Fibonacci sequence
22. Solve associated applications

23. Carry out operations on integers, rational, and irrational numbers [includes radical expressions]
24. Determine which set a number belongs in [natural, whole, integer, etc.]
25. Express a fraction as a decimal
26. Express a terminating decimal as a fraction
27. Express a repeating decimal as a fraction
28. Simplify complex numbers
29. Solve associated applications

30. Calculate interest [simple, compound and continuous compound]
31. Calculate future value, present value, and inflation (remember, this is done using continuous compound interest only)
32. Determine credit card finance charges given a particular method
33. Determine APR, interest charged, monthly payment, etc. for a given purchase [car, house, purchase]
34. Read information from a stock quote
35. Determine the amount available on retirement funds (tax-deferred and taxable)
36. Calculate values of amortizations [monthly payments, present value, etc.]
37. Solve associated applications

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38. Determine the degree of a vertex of a given network
39. Determine if a given network is traversable
40. Determine if a given network contains an Euler Circuit & Path
41. Determine if a given network contains a Hamiltonian Cycle
42. Determine whether a given graph is a tree
43. Determine a spanning tree for a given graph

44. Identify the voting methods discussed
45. Identify the apportionment methods
46. Determine the total number of voters from a given voting set
47. Determine the number of votes necessary for a majority
48. Determine the 'winner' of a situation using a requested voting method
49. Determine the standard divisor for an apportionment
50. Determine the standard quota for an apportionment
51. Determine apportionment given a particular method
52. Determine the rank of the decimal portions for a Hamilton apportionment
53. Determine the geometric mean for the Huntington-Hill apportionment

Chapter Review/Test questions:
Ch. 1 p. 45 1 – 9, 12, 16 – 20
Ch. 4 p. 176 1 – 18
Ch. 5 p. 218 1 – 9, 11 – 15, 17 – 22
Ch. 6 p. 288 1 – 10, 12 – 30
Ch. 13 p. 772 1 – 11, 13 – 16, 18 – 21
Ch. 14 p. 834 1 – 7, 11 – 13, 15 – 21, 27 – 30, 32
Ch. 15 p. 895 1 – 4, 7 – 12, 15 – 20, 22 – 24, 29 – 32

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