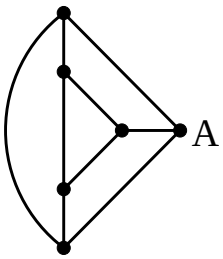
MAT 118, Chapter 6 Sample Questions, Exam on Monday, October 25

(1) ☐ This Irish mathematician lived from 1805 to 1865, became Astronomer Royal of Ireland at age 21 and is best known for inventing quaternions.
(a) Rene Descarte
(b) Johann Bernoulli
(c) William Hamilton
(d) Leonard Euler
(e) Fredrich Gauss
(f) none of these

(2) ☐ This Stony Brook professor was awarded the 2010 Godel prize for inventing a fast, approximate algorithm for the traveling salesman problem.
(a) Dennis Sullivan
(b) Joe Mitchell
(c) Jack Milnor
(d) James Glimm
(e) Raanan Schul
(f) none of these

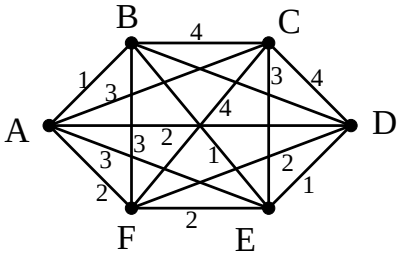
(3) ☐ In a complete graph with four vertices labeled A, B, C and D, how many Hamiltonian paths start at A and end at B?
(a) 0
(b) 1
(c) 2
(d) 6
(e) 24
(f) none of these

(4) ☐ In the graph on the right, how many Hamiltonian circuits begin at A?
(a) 1
(b) 2
(c) 4
(d) 6
(e) 9
(f) none of these



(5) ☐ Use the nearest neighbor algorithm starting at vertex D. What circuit do you find?

(a) D, E, B, A, F, C, D
(b) D, B, F, E, C, A, D
(c) D, F, C, A, B, E, D
(d) D, E, A, F, B, C, D
(e) D, B, E, A, F, C, D
(f) none of these



(6) ☐ What is the cost of the circuit found by the cheapest link algorithm using data in this table?

(a) 2600
(b) 2000
(c) 2800
(d) 3100
(e) 2500
(f) none of these

	A	B	C	D	E	F
A	*	400	700	1000	1100	600
B	400	*	600	500	1000	700
C	700	600	*	300	500	400
D	1000	500	300	*	100	500
E	1300	1000	500	100	*	400
F	600	700	200	500	400	*

(7) ☐ 100! =

(a) 101
(b) 3628800
(c) 2432902008176640000
(d) 119622220865480194561963161495657715064383733760000000000
(e) 304140932017133780436126081660647688443776415689605120000000000000
(f) 933262154439441526816992388562667004907159682643816214685929638952175
999932299156089414639761565182862536979208272237582511852109168640000
00000000000000000000