Problem Set 23,24

Graded

Student

Total Points

96 / 100 pts

Question 1

Exercise 10.1.2

8 / 8 pts

✔ **– 0 pts** Correct

– 8 pts no answer

– 8 pts illegible

– 8 pts wrong problem

– 2 pts incorrect vertex set

– 2 pts incorrect edge set

– 4 pts incorrect table

Question 2

Exercise 10.1.4

5 / 5 pts

✔ **– 0 pts** Correct

– 1 pt vertex error

– 5 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 2 pts 2 or more vertex errors

– 1 pt edge errorincorrect table

– 2 pts 2 or more edge errors

Question 3

Exercise 10.1.9(i)

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts incorrect

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 2 pts too few

– 2 pts too many

Question 4

Exercise 10.1.9(ii)

4 / 4 pts

✔ **– 0 pts** Correct

– 2 pts too many

– 2 pts too few

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

Question 5

Exercise 10.1.9(iii)

4 / 4 pts

✔ **– 0 pts** Correct

– 2 pts too many

– 2 pts too few

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

Question 6

Exercise 10.1.9(iv)

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 2 pts too few

– 2 pts too many

Question 7

Exercise 10.1.9(vi)

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer / incorrect :(

– 4 pts illegible

– 4 pts wrong problem

– 2 pts too few

– 2 pts too many

Question 8

Exercise 10.1.9(vii)

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer/ incorrect :(

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect

Question 9

Exercise 10.1.9(viii)

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect

Question 10

Exercise 10.1.16

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts incorrect template

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect (half the degree sume)

Question 11

Exercise 10.1.19

5 / 5 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect (impossible since the degree sum must be even))

– 3 pts inadequate explanation

Question 12

Exercise 10.1.22

1 / 5 pts

– 0 pts Correct

✔ **– 4 pts** incorrect (impossible since the degree sum cannot be more than 4)

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 3 pts inadequate explanation

Question 13

Exercise 10.1.36c

6 / 6 pts

✔ **– 0 pts** Correct

– 6 pts no answer

– 6 pts illegible

– 6 pts wrong problem

– 3 pts incorrect vertex set

– 3 pts incorrect edge set

Question 14

Exercise 10.2.8b

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect

Question 15

Exercise 10.2.8c

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect

Question 16

Exercise 10.2.8d

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect

Question 17

Exercise 10.2.13

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect (all vertices must have positive even degree)

– 3 pts inadequate explanation

Question 18

Exercise 10.2.15

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect circuit

Question 19

Exercise 10.2.20

4 / 4 pts

✔ **– 0 pts** Correct

– 4 pts incorrect (no such path)

– 3 pts inadequate explanation

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

Question 20

Exercise 10.2.22

5 / 5 pts

✔ **– 0 pts** Correct

– 5 pts no answer

– 5 pts illegible

– 5 pts wrong problem

– 5 pts incorrect path

Question 21

Exercise 10.2.29

5 / 5 pts

✔ **– 0 pts** Correct

– 5 pts incorrect template

– 5 pts no answer

– 5 pts illegible

– 5 pts wrong problem

– 5 pts incorrect path

Question 22

Exercise 10.2.31

5 / 5 pts

✔ **– 0 pts** Correct

– 4 pts no answer

– 4 pts illegible

– 4 pts wrong problem

– 4 pts incorrect (no such path)

– 3.5 pts inadequate explanation

Put your answer in each indicated box. Answers must be handwritten, legible and use correct notation.
Study the answers in Appendix A to similar problems so you know what your approach should be.
Larger boxes indicate that you are expected to provide substantial detail.

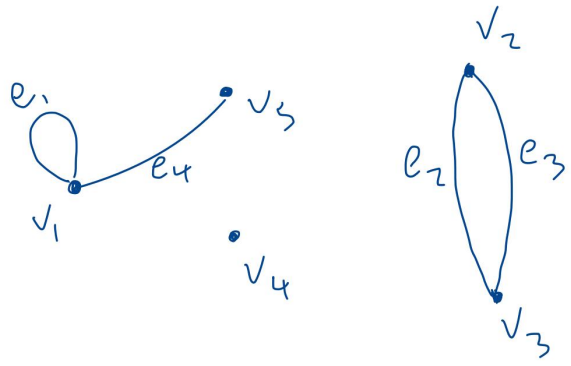
1. Exercise 10.1.2

$V(G) = \{v_1, v_2, v_3, v_4\}$

$E(G) = \{e_1, e_2, e_3, e_4, e_5\}$

edge	endpoints
e_1	$\{v_1, v_2\}$
e_2	$\{v_2, v_3\}$
e_3	$\{v_3, v_2\}$
e_4	$\{v_2, v_4\}$
e_5	$\{v_4\}$

2. Exercise 10.1. 4



3. Exercise 10.1.9(i)

e_1, e_2, and e_7 are incident on v_1

4. Exercise 10.1.9(ii)

v_1 and v_2 are adjacent to v_3

5. Exercise 10.1.9(iii)

e_2 and e_7 are adjacent to e_1

6. Exercise 10.1.9(iv)

The loops are e_1 and e_3

7. Exercise 10.1.9(vi)

V_4 is the only isolated vertex

8 . Exercise 10.1.9(vii)

The degree of V_3 is 2

9, Exercise 10.1.9(viii)

14

10. Exercise 10.1.16

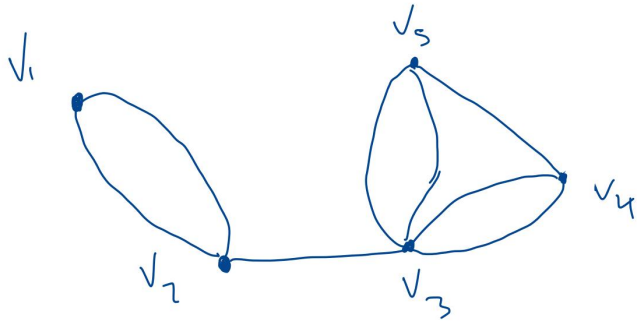
8

11. Exercise 10.1.19

$1+1+1+4=7$.

The total degree of a graph can never be even so no such graph exists.

12. Exercise 10.1.22



degree $V_1 = 2$

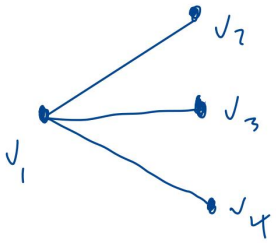
degree $V_2 = 3$

degree $V_3 = 5$

degree $V_4 = 3$

degree $V_5 = 3$

13. Exercise 10.1.36c



14. Exercise 10.2.8b

2 connected components

15. Exercise 10.2.8c

3 connected components

16. Exercise 10.2.8d

2 connected components

17. Exercise 10.2.13

V_9 has odd degree so no circuit

18. Exercise 10.2.15

rstuvwxywvyzuszr

19. Exercise 10.2.20

u has an odd degree so an Euler circuit is not possible

20. Exercise 10.2.22

Yes it can be done. Travel between rooms in the following order: A, H, G, B, C, D, G, F, E

21. Exercise 10.2.29

a, b, c, e, f, g, d, a

22. Exercise 10.2.31

There exists a smaller circuit with the graph so a hamiltonian graph can't exist