48/50

A. Nutrient Distribution

1. Using the Mifflin or DRI equation, calculate your energy needs. Please include calculations (2 points)

Height: 5'2" = 62" x 2.54cm = 157.5cm

Weight: 105/2.2kg/lb = 47.7kg

Mifflin: (10 x w) + (6.25 x h) - (5 x a) – 161

      (10 x 47.7kg) + (6.25 x 157.5cm) - (5 x 31) – 161

      477 + 984 – 155 – 161 = 1145 kcal

      1145 kcal x 1.375 (activity factor) = 1574 kcal ✓

2. Determine macronutrient distribution. Please include calculations. (3 points)

Protein:
RDI: 47.7kg x .8 = 38.16g protein (should be 46 g to meet RDA)
AMDR: 10% - 35% of calories
.10 x 1574 = 157.4/4kcal/g = 39g protein
.15 x 1574 = 236.1/4cal/g = 59g protein – selecting 15% protein ✓
.35 x 1574 = 551/4kcal/g = 138g protein

Carbohydrate: AMDR: 45% - 65% of calories, RDA = 130g
.45 x 1574 = 708 kcal
708 kcal/4kcal/g = 177g carbohydrates
.6 x 1574 = 944 kcal
944 kcal/4kcal/g = 236g carbohydrate – selecting 60% carbohydrate ✓
.65 x 1574 = 1,023 kcal
1,023 kcal/4kcal/g = 256g carbohydrates

Fat: AMDR: 20%– 35% of calories
.2 x 1574 = 315/9kcal/g = 35g fat
.25 x 1574 = 394/9kcal/g = 44g fat – selecting 25% fat ✓
.35 x 1574 = 551/9kcal/g = 61g fat

B. Exchange List: using information from section A (15 points)

1. Create a meal plan for yourself using the exchange system.

Goal: 59g protein, 236g CHO, 44g fat

Diabetes Meal Plan Calculation (goal = 59 protein, 236 carb, 44g fat)

Food Groups	No. Exchanges	CHO (g)	Protein (g)	Fat (g)
Milk (fat-free milk/yogurt)	2	24	16	0
Starch	9	135	18	9
Fruit	4	60	0	0
Vegetable	4	20	8	0
Other Carbs				
SubTotal		239g carb	42	9
Meat [remaining g protein ÷ 7] 59 − 42 = 17/7 = 2.4 (give 3)				
Very Lean				
Lean				
Medium-fat	3	0	21	15
High-fat				
SubTotal			63g protein	
Fat [remaining g fat ÷ 5] 44-24 = 20/5 = 4 (give 4)	4	0	0	20
Total				44g fat

2. Provide a sample one-day menu.

	Starches	Fruits	Milk	NS Veg	Meat/ Meat Subs	Fats	Menu Ideas
Diabetic Exchange Meal Plan (1574 kcal, 60% carb, 15% protein, 25% fat)							
Breakfast	2	1	1				1 cup oatmeal (2 starch - serving is 1/2 cup) 3/4 cup blueberries (1 fruit) 1 cup fat free milk (1 milk)
Snack		1		1		2	1 small, unpeeled apple (1 fruit) 1 cup raw celery sticks (1 NS Veg) 1 tbsp peanut butter (2 fat - seving is 1.5 tsp)
Lunch	2			1	1	1	**Mozzarella Tomato Basil Sandwich** 2 slices whole grain bread (2 starch - serving is 1 slice) 1 oz fresh mozzarella cheese (1 meat) 1/2 cup raw tomato slices (1/2 NS Veg) 1 tbsp fresh basil leaves (free) 1 tsp olive oil (1 fat) **Small Tossed Salad** 1 cup salad greens (free) 1/8 cup raw carrots (1/8 NS Veg) 1/8 cup raw cucumbern (1/8 NS Veg) 1/8 cup raw mushrooms (1/8 NS Veg) 1/8 cup raw peppers (1/8 NS Veg) 1 tbsp low-fat salad dressing (free) 6 saltine crackers (1 starch)
Snack	1	1			1		3 oz - 17 grapes (1 fruit) 1 oz reduced fat cheese (1 meat)
Dinner	3			2	1	1	**Vegetable Pasta** 2/3 cup pasta (2 starch - serving is 1/3 cup) 1/4 cup spaghetti sauce (1/2 starch) 1/4 cup cooked zucchini (1/2 NS veg) 1/4 cup cooked summer squash (1/2 NS veg) 1/4 cup cooked mushrooms (1/2 NS veg) 1/4 cup cooked green peppers (1/2 NS veg) 1 oz mozzarella cheese (1 meat) **Roll** 1/2 roll (1/2 starch) 1 tsp butter (1 fat)
Snack	1	1	1				1/4 cup low fat granola 2/3 cup plain yogurt strawberries
Exchange Totals:	9	4	2	4	3	4	

C. CHO Counting: using information from section A (12 points)

1. Create a meal plan for yourself using CHO counting (different from B.1).

CHO Counting

No CHO ✓

	Breakfast	Snack	Lunch	Snack	Dinner	Snack
Carbohydrate (starch, fruit, milk or 3 NS veg)	4	1	4	1	5	1
Starch						
Fruit						
Milk						
Vegetables						
Others (sweets						
Protein		1	1		1	
Fat	1		1	1	2	

2. Provide a sample one-day menu (different from B.2).

236g/15g = 15.7 = 16 CHO units
16 x 70kcal per CHO = 1,120kcal

1,574kcal – 1,120 kcal = 454 kcal left for protein and fat
59g Protein x 4kcal/g = 236 kcal protein
236 kcal/75kcal per protein = 3 protein units

1,120kcal + 236 kcal = 1,356 kcal
1,574 kcal – 1356 kcal = 218 kcal for fat
218 kcal/45kcal per fat = 4.8 = 5 fat

	Total Carb	Starches	Fruits	Milk	NS Veg	Meat/ Meat Subs	Fats	Menu Ideas
Breakfast	4						1	2/3 cup plain yogurt (1 CHO unit) 1.25 cup whole strawberries (1 CHO unit) 2 slices whole grain bread (2 CHO units) 1 tsp butter (1 fat)
Snack	1					1		1 unpeeled, small apple (1 CHO unit) 1 oz cheddar cheese (1 protein)
Lunch	4					1	1	**Stirfry Wrap** 1 6 inch flour tortilla (1 CHO) 1/2 cup cooked mushrooms (1/3 CHO unit) 1/2 cup cooked peppers (1/3 CHO unit) 1/2 cup cooked broccoli (1/2 CHO unit) 1/3 cup brown rice (1 CHO unit) 1/2 cup tofu (1 protein) 1 tsp canola oil (1 fat) 2 small tangerines (1 CHO unit)
Snack	1						1	3 cups popcorn (1 CHO) 1 tsp butter (1 fat)
Dinner	5					1	2	**Sweet Potato Quesadilla** 1 10 inch flour tortilla (3 CHO unit) 1 oz monterey jack cheese (1 protein) 1/4 cup cooked zucchini (1/6 CHO unit) 1/4 cup cooked red onion (1/6 CHO unit) 1/2 clove minced garlic (free) 1/4 cup black beans (1/2 CHO unit) 1/4 cup sweet potato (1/2 CHO unit) 2 tsp canola oil for cooking (2 fat) 1 cup steamed broccoli (2/3 CHO unit)
Snack	1							3, 2.5" squares graham crackers (1 CHO unit)

(handwritten notes: "= 1 CHO" beside mushrooms/peppers/broccoli/rice group; "= 1 CHO" beside zucchini/onion/beans/sweet potato group)

D. Label (8 points) [see below]
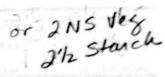1. Convert label to exchange list for 1 serving.

CHO
Total Carb = 50g/15g per carb unit = 3.33333 = 3.5 carb units
Fiber = 6g/2 = 3g fiber
50g carb – 3 = 47g carb/15g per carb unit = 3.1 = **3 starch exchanges**   *or 2 NS Veg 2½ Starch*

Protein
2 protein x 3 CHO units = 6g protein from CHO
Total protein 15g – 6g from CHO = 9g remaining/7g = 1.2 = **1 meat/meat sub** ✓

Fat
2g fat from lean meat (chicken) x 1 meat = 2g fat from meat ✓
Total fat 6g – 2g from meat = 4g fat remaining (5g in 1 fat round up) = **1 fat**

Roasted Green Beans, Red Onions, Green Bell Peppers, Red Bell Peppers, Tomato Paste (Tomatoes), Caramelized Onions = 1/4 cup cooked vegetables = **.5 NS vegetable**

Label Exchanges: Starch 3, Meat/Meat sub 1, Fat 1, .5 NS vegetable

2. Convert label to CHO counting for 1 serving.

Total Carb = 50g/15g per carb unit = 3.33333 = 3.5 carb units
Fiber = 6g/2 = 3g fiber
50g carb – 3 = 47g carb/15g per carb unit = 3.1 = 3 CHO unit ✓

E. Recipe (10 points) [see below]

Barb - I made this label on 3 different sites and got all different amounts. I based my answers for CHO counting off this label although I think the calories seem a little high. I hope that is okay. I am guessing the CHO counting answer should be closer to 3, which would be closer to my exchange answer.

Nutrition Facts

User Entered Recipe

1 Serving

Amount Per Serving	
Calories	641.7
Total Fat	35.0 g
Saturated Fat	5.9 g
Polyunsaturated Fat	3.2 g
Monounsaturated Fat	16.5 g
Cholesterol	16.7 mg
Sodium	1,605.0 mg
Potassium	733.2 mg
Total Carbohydrate	68.7 g
Dietary Fiber	12.6 g
Sugars	0.2 g
Protein	16.1 g
Vitamin A	20.7 %
Vitamin B-12	5.3 %
Vitamin B-6	68.9 %

1. Convert recipe to exchanges for 1 serving.

Greek Garbanzo Bean Salad (serves 2)	
Ingredient	Exchange
2 cups garbanzo beans	4 starch and 4 lean meat
2 medium garlic cloves	Free food
1 medium tomato, diced	1 NS vegetable
½ red onion, diced	.5 NS vegetable
2 tbsp parsley	Free food
1 tbsp fresh lemon juice	Free food
3 tbsp olive oil	9 fat
¼ tsp salt	Free food
¼ tsp pepper	Free food
¼ cup feta cheese	2 medium fat meat
6 sliced kalamata olives	1 fat
1 tsp fresh rosemary	Free food
Totals: 4 starch, 6 meat, 10 fat, 1.5 NS vegetable	
Total for one serving = 2 starch, 3 meat, 5 fat and 1 NS vegetable	

2½   2

2. Convert recipe to CHO counting for 1 serving.

68.7g CHO/15g per carb = 4.58 = 4.5 CHO Units (without accounting for fiber)
Fiber 12.6g/2 = 6.3g
68.7g – 6.3g CHO from fiber = 62.4g/15g = 4.16 = **4 CHO units**

(68.7g) ?

3 CHO units

Calcium   6%   Iron   10%

LABEL: Chicken and Chipotle BBQ

Nutrition Facts	
Serving½packageSize	
Amount per Serving	
Calories 310	Calories from Fat 50
	% Daily Value
Total Fat 6 g	9%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 30 g	10%
Sodium 620mg	26%
Potassium 530mg	15%
Total Carbohydrate 50g	17%
Dietary Fiber 6g	25%
Sugars 13g	
Protein 15g	29%
Vitamin A 0%	Vitamin C 0%

Ingredients Cooked Pilaf (Water, Whole Oats, Brown Rice, Rye, Hard Red Wheat, Triticale (Hybrid Of Wheat And Rye), Buckwheat, Dehulled Barley, Sesame Seeds)), Cooked White **Chicken** (Chicken Water, Rice Starch, Sea Salt, Dehydrated Garlic, Dehydrated Onion, Evaporated Cane Syrup, Natural Flavor From Sunflower Oil), Water, Diced Mangoes, Roasted Green Beans (Green Beans, Extra Virgin Olive Oil), Red Onions, Green Bell Peppers, Red Bell Peppers, Tomato Paste (Tomatoes), Caramelized Onions, Apple Cider Vinegar, Natural Ancho Chili Paste (Water, Ancho Chili, Onion Puree, Granulated Cane Syrup, Spices, Cilantro, Garlic, Sesame Seed, Sea Salt, Paprika, Cornstarch), Evaporated Cane Syrup Crystals, Molasses, Expeller Pressed Canola Oil, Garlic (Garlic, Water), Honey, Rice Starch, Salt, Soy Sauce (Water, Soybeans, Salt, Wheat), Balsamic Vinegar, Mango Juice Concentrate, Chipotle Pepper.

RECIPE: Greek Garbanzo Bean Salad

Serves 2

Ingredients
1 (15 ounce) can garbanzo beans
2 medium garlic cloves
1 medium tomato, diced
1/2 medium red onion, chopped
2 tablespoons parsley, chopped
1 tablespoon fresh lemon juice
3 tablespoons extra virgin olive
oil salt and pepper to taste
1/4 cup feta cheese, crumbled
6 sliced Kalamata olives
1 teaspoon fresh rosemary

Directions:

Press or mince garlic and let sit for at least 5 minutes. Drain liquid from garbanzo beans and rinse under cold running water. Combine all ingredients with lemon juice, olive oil, and salt and pepper to taste.