Urinalysis, part 1 (lab 9.1)

A) Background information on Renal Solute Regulation
The background information for understanding this lab is in lab 9.1.

B) Urine pH and Specific Gravity determination procedure
1) Obtain a urinometer, a pH paper kit, and a beaker.

2) Wash out your beaker with water from the sink then dry the beaker.

3) On the front desk are urine samples from five different patients. These are called urine samples A, B, C, D, and E. Pour 30 mL of urine sample A into your beaker.

4) <u>Taking the specific gravity:</u> Place the urinometer float into the urinometer cylinder. Pour urine from the beaker into the cylinder until the urine is almost to the top of the cylinder. This should cause the float to float.

    The scale on the float begins at zero at the top and goes to 40 near the bottom. Read the value on the scale at the water line of the urine sample. If you need help reading the urinometer scale, ask your instructor for assistance.

    The digits read on the urinometer scale are the last two digits of a 1.000 specific gravity reading. For example, if the urinometer reads 14, the specific gravity is 1.014. If the urinometer reads 8, the specific gravity is 1.008.

    Record the specific gravity of urine sample A in the data table on the next page. Normal urine specific gravity is 1.010 – 1.025.

5) <u>Taking the pH</u>: Using the forceps to hold the pH paper, immerse a strip if pH paper into each urine beaker for 10 seconds. Remove the paper from the beaker and allow the color to develop for 30 seconds. Read the pH by referring to the color scale on the pH paper container.

    Record the pH of urine sample A in the data table on the next page. Normal urine pH is 5.0 – 7.5.

6) Repeat steps (2) - (5) but with urine sample B, then C, D, and E.

7) When finished wash the urinometer and the beaker with deionized water and dry them. Replace all materials to where you obtained them.

Data table:

Urine sample →	A	B	C	D	E
SG:	___	___	___	___	___
pH:	___	___	___	___	___
Patients that would produce that urine:	___	___	___	___	___

C) Matching patients to urine samples
From the list of patients below, match each patient to one of the urine samples

a) Normal patient (no diseases, disorders, or abnormal behaviors)

b) Patient was lost in the desert for several days, with no water to drink

c) Patient has been drinking whiskey

d) Patient has been drinking lemonade (contains citric acid)

e) Patient drank a liter of water

f) Patient had severe diarrhea

g) Patient takes hydrochlorothiazide (a diuretic) to control high blood pressure

h) Patient has diabetes insipidus

h) Patient has been vomiting (but is not dehydrated)

i) Patient had a panic attack

j) Patient has emphysema

k) Patient is a vegan

l) Patient has untreated diabetes mellitus

m) Patient has acute kidney failure