Complete this 'Introduction to Urinalysis Worksheet' as you complete the reading assignment

Examination of Urine

1. Give four clinical reasons (rationale) for the examination of urine:

Formation and Composition of urine

2. Urine is continuously formed by the kidneys and involves 3 complex processes:

3. The largest component (> 96%) of urine is _____________ and is dependent on the hydration state (status) of the patient.

4. The main chemical solutes of urine include:

5. Two tests that may be done to determine if the sample is urine are _____________ or _____________.

Types of Urine Specimens

6. First morning void: frequently the specimen of choice for most studies and the most concentrated specimen. Explain how this type of specimen is collected:

   Retained in bladder approximately _____________.

   Ideal screening specimen for substances that require

   Formed elements such as WBC, RBC and casts are more stable in this type of collection because:
7. Random: most common specimen collected

Why is this the most common specimen collected?

What type of patient preparation is required for this type of collection?

Why might this sample not accurately reflect the patient’s condition?

8. Timed Collections: eliminate the need to determine when excretion of a particular substance is optimal; also allows comparison of excretion pattern of a particular substance (ex: creatinine) from day to day

Why do quantitative urine assays require this type of specimen?

Timed collections can be divided into two types:

A 2 hour post prandial (2 hr PP) sample is collected 2 hours after ________________.

9. Accurate timing and proper collection are essential. EXPLAIN the collection protocol for a 24-hour urine collection (be very specific and detailed)

10. List the most common errors associated with quantitative urine testing:
Specimen Collection Techniques

11. Midstream Clean Catch

When should this type of collection be used?

Explain the collection protocol for a midstream clean catch

The midstream collection technique allows collection of a specimen that most represents the contents of the , , .

Why is this type of specimen considered an excellent specimen for routine urinalysis and culture?

12. Catheterized Specimen

Briefly explain the collection protocol for a catheterized specimen

When additional tests are ordered, the culture/urine dipstick is performed first. Why:

13. Suprapubic Aspiration

Briefly explain the collection protocol for a suprapubic aspiration

When is this type of collection used?
14. Pediatric Collections

   Explain the collection protocol for pediatric collections:

   Once the bag is in place, why is the patient checked every 15 minutes?

Specimen Storage, Labeling and Handling Guidelines

15. When a specimen must be stored for greater than 2 hours prior to testing, what type of container should be used for urine collection and why?

   Why are some containers made of a brown, opaque plastic?

   Why is it NOT good practice to label only the specimen container lid?

   Containers should be properly labeled following collection. List the minimal information required on the label:

   Specimens should be analyzed within ______________ of collection. If analysis is delayed, precautions must be taken to preserve the integrity of the specimen

Preservation of urine specimens:

16. Easiest and most ideal form of urine preservation is: ____________________.

   Advantages:
   a) Prevents bacterial proliferation
   b) Specimen remains suitable for culture up to 24 hrs

   Disadvantages:
17. How should a timed urine collection be handled/stored during the collection process, even if a chemical preservative is used?

18. Handling/processing of timed urine collections: What is the handling protocol for a timed urine collection after it reaches the laboratory?

19. At no point during a timed collection should urine be removed or discarded from the collection container, even if the volume of urine is recorded. Why:

Changes in Unpreserved Urine

20. For each of the following parameters, list the potential changes in unpreserved urine and the reason for that change

   Physical changes:
   a. **Color**
   b. **Clarity**
   c. **Odor**

   Chemical changes:
   a. **pH**: most often becomes more alkaline upon prolonged standing. Explain why:

   pH less often becomes more acid upon prolonged standing. Explain why:

   b. **Glucose** falsely decreased due to ________________ use of glucose
   c. **Ketones** falsely decreased due to volatilization of ________________.
   d. **Bilirubin** falsely decreased due to exposure to__________________.
   e. **Urobilinogen** falsely decreased due to exposure to ________________.
   f. **Nitrite** most often falsely ________________ due to bacterial conversion of nitrates to nitrites (over 4 hours of time)
Microscopic changes:

a. **Red blood cells, white blood cells, ______________**: falsely decreased due to disintegration
b. **Bacteria** falsely____________________ due to bacterial proliferation

**Quality Control**

21. What is the purpose of performing quality control?

22. QC material should similar to patient samples in their physical and chemical characteristics: they should have the same ____________________.

23. List 2 limitations of quality control: