DIRECTIONS: Circle T if you believe the statement is true; F, if false.

- T F 1. Cytomorphology is the study of the size and shape of tissues.
- T F 2. The goal of cytopreparatory techniques is to display cells in their natural appearance.
- T F 3. Clinical cytology is the study and interpretation of cytomorphology in health and disease.
- T F 4. In vivo cytomorphology is invariable; in vitro cytopreparatory manipulations can not alter it.
- T F 5. Cellular viability is a clearly definable state.
- T F 6. Immediately following the loss of cellular viability, the deterioration of cytomorphology is obviously evident microscopically.
- T F 7. In many fresh, unfixed cytologic specimens, cytomorphology will remain stable for hours or even days when refrigerated.
- T F 8. In preparation of cell spreads, a major objective is to apply as much specimen as possible to the slide's cell collection-display area.
- T F 9. It is desirable in diagnostic cytology to increase cell recovery on slides by letting cell spreads completely air dry before being immersed in fixative.
- T F 10. The "ribbing effect" described by Naylor is caused by too rapid immersion of a cell spread in fixative.
- T F 11. Centrifugation of a cell suspension sediments all the cells to the bottom of the centrifuge tube.
- T F 12. Cellulosic membrane filters and polycarbonate filters have identical physical, chemical, and optical properties.
- T F 13. Although cell suspensions can be filtered directly, prior enrichment by centrifugation is desirable to separate the cells from the liquid fraction that is debris-laden.
- T F 14. As a general rule, prefixed specimens are more suitable than fresh ones for collection on membrane filters.
- T F 15. Before filtration, cellulosic filters should be pre-expanded by immersion in 95 percent ethyl alcohol.
- T F 16. Like cellulosic filters, polycarbonate filters should be pre-expanded by immersion in 95 percent ethyl alcohol.

- T F 17. Following centrifugation, the sediment should be prepared for filtration by resuspension in normal saline.
- T F 18. Normal saline is "normal" because its composition physiologically mimics that of natural fluids in all respects.
- T F 19. During filtration, minimal rinsing with physiologic saline is done to avoid distorting cellular morphology.
- T F 20. During filtration aliquots of saline rinses are directed at the center of the filter to ensure fast filtration.
- T F 21. During filtration it is desirable to increase cell recovery by allowing the filter to dry out.
- T F 22. Red blood cells in specimens collected on polycarbonate filters are lost by direct passage through the pores.
- T F 23. Red blood cells in specimens collected on cellulosic filters can not pass through the pores.
- T F 24. Red blood cells in specimens collected on cellulosic filters are colorless; their pigment is removed by hemolysis during fixation in situ.
- T F 25. Membrane filters should be labeled with specimens' accession numbers to ensure accurate identification.
- T F 26. Fixation in situ of specimens on filters increases cell recovery.
- T F 27. The amount of vacuum applied to polycarbonate filters should be minimal to avoid pulling non-erythrocytic cells through the pores.
- T F 28. The amount of vacuum applied to cellulosic filters can be as much as 100 mm Hg without cell loss or distortion.
- T F 29. The low porosity of polycarbonate filters makes them behave like a slide during staining.
- T F 30. The spongelike quality of cellulosic filters requires several modifications of slide staining schedules for best results.
- To F 31. Ether has been deleted from the classical ether-alcohol fixative by most laboratories because of its explosion hazard.
- T F 32. All alternatives to the recommended fixative in cytology produce equally useful cytomorphology.
- T F 33. The goal of fixation in diagnostic cytology is to preserve in cells a lifelike appearance.
- T F 34. Immediate wet fixation is generally accepted to mean that fresh cells are spread on a slide or collected on a filter and immersed in fixative before air-drying can occur.

- T F 35. Once fixed, cells can be air-dried without morphologic distortion.
- T F 36. "The standard Papenicolaou stain" means that all cytological laboratories use stains of identical formulation in the same staining schedules to achieve results of indistinguishable quality.
- T F 37. The objectives of the Pap stain are: (1)good nuclear staining, (2)differential counterstaining and (3)cytoplasmic transparency.
- T F 38. Progressive staining with hematoxylin is diffusively and excessively coloring cells, followed by differential extraction in HCl.
- T F 39. Harris hematoxylin may be applied to cells regressively or progressively.
- T F 40. The scum that forms on Harris hematoxylin is active staining ingredient, hematein-aluminum.
- T F 41. The useful life of Mayer's hematoxylin is short because the amount of oxidizing agent is too great for the amount of hematoxylin.
- T F 42. Hydration and dehydration of cell spreads through series of graded percentage alcohols can be simplified without noticeable difference by doing hydration and dehydration in one step from alcohol to water and water to alcohol respectively.
- T F 43. OG-6 and EA solutions manufactured by different companies are of identical composition.
- T F 44. Dipping slides during staining promotes more uniform coloring of cells.
- T F 45. At the recommended level of 5 gm per liter alcohol for OG-6, orange G is within its solubility limits in alcohol at room temperature.
- T F 46. Bismarck brown Y and phosphotungstic acid in EA combine to form a precipitate.
- T F 47. Phosphotungstic acid in EA enhances differential counterstaining by light green and eosin.
- T F 48. Cytoplasmic transparency is achieved in the Papanicolaou stain by preparing OG-6 and EA in alcohol.
- T F 49. Refractive index is an optical property that determines whether light rays passing through two dissimilar media will follow a straight path.
- T F 50. Light rays passing through two dissimilar media follow a straight path.
- T F 51. Because its refractive index is similar to that of cells, xylene makes cells transparent and is said to "clear" them.
- T F 52. Free water in xylene can be removed by filtering the xylene through qualitative grade filter paper.

F 54. Although the recommended thickness coverglass for American made microscopes in No. $1\frac{1}{2}$, in practice No. 1 is better.

T .F 53. Cell spreads that dry before coverslipping may exhibit the "brown

artifact".

and uniform illumination.

T F 55. The thickness of No. 1 coverslips plus the thickness of mounting medium exceeds the recommended thickness of coverglasses, thus No. $1\frac{1}{2}$ thickness coverglasses should be used.

T F 56. For "cooked" slides and Nuclepores dissolved on a coverglass, the recommended coverglass thickness is No. 1½.
 T F 57. Different brands of resinous mounting media preserve stains equally well.

well.

T F 58. The double refractive index of polycarbonate filters prevents their pores being made invisible by mounting the filter in a medium of matching refractive index.

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T F 59. Mounting media have two limiting refractive indexes, one in the liquid

T F 59. Mounting media have two limiting refractive indexes, one in the liquid state and the other in the solid state.

T F 60. The goals of Kohler illumination are maximum microscopic resolution