



KENYATTA UNIVERSITY

**END OF YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICINE AND BACHELOR OF SURGERY (MBChB Level II)**

HPA I: PATHOLOGY I - PAPER III: PRACTICALS

3RD TRIMESTER 2021/2022

TIME: 3 HOURS

INSTRUCTIONS:

- 1. This paper contains 50 questions**
 - 2. Each questions with a maximum of two marks**
 - 3. Answer ALL questions in the answer booklets provided**
-
1. (a) Identify the test kit
(b) State the principle behind the test
 2. (a) Identify the specimen
(b) State how the specimen is adapted to host immune evasion
 3. (a) Identify the structure in the photograph
(b) State what would happen with regard to its immunological function if its source was subjected to sub-lethal dose of X-rays irradiation
 4. (a) Name the stain used in the preparation of this slide
(b) State the identity of the star-shaped cells on the side

5.
 - a) State what you have observed in (a).
 - b) Identify the process occurring at the bottom of the diagram (b)
6.
 - a) Identify the positive test in this agglutination inhibition pregnancy test.
 - b) Explain the reaction in the positive test in (a) above
7. Explain the principle behind the diagnostic test represented
8.
 - a) Give the titre for the test shown
 - b) State the main disadvantage of this type of test in (a) above
9. Explain how a positive test line is formed in this rapid SARS-CoV-2 diagnostic test
10.
 - a) State the diagnosis for the genetic disorder shown by the patient in the photograph
 - b) State the chromosomal complement for the disorder named in (a) above
11.
 - a) Name the environmental pollutant responsible for the disorder shown:
 - b) State the two symptoms of the poisoning in children
12.
 - a) State the pattern of inheritance represented by the pedigree shown
 - b) Name any two disorders inherited by the pattern named in (a) above
13.
 - a) Name the test demonstrated above
 - b) Name the disease whose antibodies the test detects
14.
 - a) Name the disease diagnosed by the demonstrated test
 - b) List any two symptoms of the disease
15.
 - a) Identify the specimen shown
 - b) State one major clinical outcome associated with the specimen.
16.
 - a) Identify the specimen shown
 - b) State the location in host and one major clinical outcome associated with the specimen.
17.
 - a) Name the clinical condition shown
 - b) State the scientific name of the arthropod responsible for the condition shown

18.
 - a) State the microscopy procedure/technique shown
 - b) Name two parasites that can be detected using the procedure shown
19.
 - a) Name the clinical condition shown
 - b) State the scientific name of the arthropod responsible for the condition shown
20.
 - a) Identify the arthropod shown
 - b) Name two virulence factors that enable the organism in (i) above to cause disease
21.
 - a) Identify the arthropod shown
 - b) State the disease transmitted by the arthropod identified in (a) above
22.
 - a) Name the lesion shown
 - b) Name the protozoan parasite that caused the lesion shown in humans
23.
 - a) Name the protozoan responsible for the condition shown
 - b) Give one drug that can be used to treat the infection shown
24.
 - a) Name the nematode responsible for the condition shown
 - b) Give one drug that can be used to treat the infection shown.
25.
 - a) Name the nematode
 - b) State the anatomical location in the human host
26.
 - a) Name the lesion
 - b) State one cause
27.
 - a) State if the tumor is benign or malignant.
 - b) Give the reason for the diagnosis in (a) above
28.
 - a) Identify the abnormality
 - b) State one common cause
29.
 - a) Identify the abnormality
 - b) Name one cause

30. a) Identify the abnormality
b) State the common source of the abnormality.
31. The organism shown was obtained from a patient who complained about sudden chills, fever and a productive cough. Gram stain of the smear revealed gram positive lancet shaped bacteria.
a) Name one virulence factor and state its mode of action.
b) State two drugs used for the treatment of the infection above.
32. a) Name the special staining technique used in diagnosis of the infection shown.
b) Name two biochemical tests used in the isolation of the causative organism of the infection shown.
33. a) Name two toxins produced by the organism
b) State the mechanism of action of either toxin named in (a) above
34. a) Identify the test
b) Name two organisms that show the reaction in the test
35. a) Identify the bacteria on the media
b) Explain how you arrived at your answer
36. a) Identify the media
b) State its use in clinical bacteriology
37. a) Identify the test
b) Explain the principle behind the test
38. a) Identify the biochemical test
b) Name two organisms test positive for this test
39. a) Identify the infection shown
b) Identify the causative agent of the infection shown

40. a) Identify the etiological agent of the infection shown
b) Name two antimicrobial agents used in the treatment of the infection
41. a) Name any two important components of the stain used in this smear
b) State one function for each of the two components named (a) above
42. a) Name the fungal identification test demonstrated here
b) Name any two fungal pathogens that can be identified by this test.
43. The picture illustrates cerebrospinal fluid aspiration technique
a) List 2 broad diagnostic applications for the cerebral spinal fluid
b) List 2 cautions in carrying out the procedure
44. The bacterium growing on this medium was obtained from blood specimen taken from a patient with active subacute endocarditis.
a) Identify the bacterium
b) Explain the type of reaction it exhibits on this medium
45. a) Identify the instrument
b) State one application of the instrument in clinical microbiology
46. 5.0×10^2 human foreskin fibroblasts were seeded in each well of a 12 well-plate, and 2.5mLs of 10^8 PFU/mL HPV virions were used to infect the fibroblasts. Calculate the MOI.
47. a) Identify the medical device
b) State the use of the medical device
48. a) Identify the virus stained below
b) Genome replication of this virus takes place in which compartment of the cell
49. a) The condition below is caused by which virus
b) Identify the host organ that is targeted by this virus

50. a) Name the skin condition below
b) Name the vaccine that is used to prevent against this