EMBU UNIVERSITY COLLEGE

(A Constituent College of the University of Nairobi)

2015/2016 ACADEMIC YEAR

FIRST SEMESTER EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN MICROBIOLOGY AND BIOTECHNOLOGY

SBT 319: MECHANISMS OF MICROBIAL PATHOGENICITY

DATE: NOVEMBER 30, 2015 **TIME: 14:00-16:00**

INSTRUCTIONS:
Answer **ALL** questions from **SECTION A and B, and ONE** question from **SECTION C**
Note: Answer questions in **SECTIONS A** and **C** in the answer book provided.

SECTION A: Multiple choice questions (1 mark each)
Tick the correct answer.

1. Which of the following is not true about normal microflora?
- ☐ Live on the body but do not cause disease.
- ☐ Live in the body but do not cause disease.
- ☐ They are parasitic.
- ☐ They are commensals.

2. Skin and mucous membranes are
- ☐ Cellular defences
- ☐ Physical barriers
- ☐ Molecular defences
- ☐ Chemical barriers

3. Which one of the following is not a regulatory mechanism of virulence genes
- ☐ Gene amplification
- ☐ Gene rearrangement
- ☐ Gene replacement
- ☐ Gene variation

4. _____ is the growth of microorganisms on epithelial surfaces

- ☐ Pathogenicity
- ☐ Immunity
- ☐ Conjugation
- ☐ Colonization

5. Endotoxins

- ☐ Are produced by Gram positive bacteria.
- ☐ Are secreted into host tissues by bacteria.
- ☐ Cause specific effects in bacteria.
- ☐ Are part of the cell wall of pathogenic bacteria.

6. Once inside a cell, viruses cause observable changes called

- ☐ Cytopathic effects
- ☐ Cytology effects
- ☐ Cell biology effects
- ☐ Cytogenetic effects

7. Resistance genes are transferred by

- ☐ Conjugative transposons
- ☐ Transforming factor
- ☐ Resistance
- ☐ Transforming DNA

8. Helminths are

- ☐ Intracellular parasites
- ☐ Micro parasites
- ☐ Extracellular parasites
- ☐ Non communicable

9. Adaptive defences respond to particular agents called

- ☐ Antibodies
- ☐ Antigens
- ☐ Antimicrobials
- ☐ Lymphocytes

10. Antibiotics that kill bacteria are said to be

- ☐ Bactericidal
- ☐ Enterotoxin
- ☐ Bacteriostatic
- ☐ Exotoxin

11. _____ encodes the ability to cause crown galls tumours in higher plants

- ☐ *Streptococcus pneumoniae*
- ☐ *Haemophilus influenza*
- ☐ *Bacillus subtilis*
- ☐ *Agrobacterium tumefaciens*

12. Interferon is an example of

- ☐ Cellular defence
- ☐ Physical defence
- ☐ Chemical defence
- ☐ Molecular defence

13. _____ can integrate into the host chromosome and remain in cells indefinitely

- ☐ Rabies viruses
- ☐ Retroviruses
- ☐ Polioviruses
- ☐ Papillomaviruses

14. The _____ *Giardia intestinalis* attaches to tissues and ingests cells.

- ☐ Protozoan
- ☐ Virus
- ☐ Bacteria
- ☐ Helminth

15. Pneumococci and Streptococci release digestive enzymes that

- ☐ Expel virulence genes
- ☐ Modify host genes
- ☐ Modify bacterial toxins
- ☐ Allow them to invade tissues

SECTION B: SHORT ANSWER QUESTIONS (5 marks each)

Use the answer book provided.

16. Distinguish between productive and abortive viral infections.
17. Explain how fungal pathogens penetrate plant hosts.
18. Explain Pathogenicity Islands.
19. State the mechanisms of antibiotic resistance.
20. Give a brief account of food borne botulism caused by *Clostridium botulinum.*
21. Describe the chemical barriers that protect the host from infections.

SECTION C: ESSAY QUESTIONS (25 Marks each)

22. Explain how bacteria cause animal diseases.
23. Discuss the role of proteins in the pathogenicity of *Streptococcus pneumoniae.*
24. Discuss the human polymicrobial diseases of the oral cavity.

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