NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Sciences
Department of Pure and Applied Sciences
2021_1 EXAMINATIONS 1234

COURSE CODE: BIO416
COURSE TITLE: INDUSTRIAL MICROBIOLOGY
CREDIT: 3 units
TIME ALLOWED: 2½ Hours
INTRUCTION: Answer question ONE (1) and any other FOUR (4) questions

1(a) Outline the conditions required for an invention as to be considered patentable in Nigeria according to the Patent and Design Decree of 1970. (2mks)
(b) What is bioprospecting? (2mks)
(c) Discuss the following techniques of strain improvement in industrial microbiology:
i. Protoplast fusion (6mks)
ii. Modification of gene expression (6mks)
iii. Protein evolution (6mks)

2(a) Describe how to screen for antibiotic production in microorganisms (3 mks)
(b) Discuss the relevance of marshing process to beer production (9mks)

3(a) list the two types of grape wine and distiguish between the two. (3 mks)
(b) In tabular form, state six (6) fermented food products, their corespounding raw ingredients and fermenting microorganisms. (9mks)

4. Microorganisms are of immense importance in the production of barley beer. Discuss. (12 mks)

5(a) Outline the steps envisioned in transferring an industrial process from the Laboratory to the commercial fermenter stage. (5mks)
(b) Industrially important microorganisms are isolated using enrichment culture technique. Discuss. (7mks)

6(a) Define a mutagen and give three examples of it. (4 marks)
(b) Give a detailed description of the three methods used in isolation and cultivation of microorganisms. (8 marks)