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**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS**

**MARCH/APRIL 2016 EXAMINATION**

**SCHOOL OF SCIENCE AND TECHNOLOGY**

**COURSE CODE: FMT313**

**COURSE TITLE: Introduction to Mathematical Modelling in Finance**

**TIME ALLOWED (3 HRS)**

**INSTRUCTION: Answer any 3 questions.**

1. a) Explain the term risk/return trade off. Of what significance is the financial system to any developing country’s economy? 9marks

b) Given an investor’s marginal cost function find the total cost function if the fixed costs are 100. 14marks

1. The following table is a demand schedule for XYZ shares. It gives a correspondence between the price (p) of a unit and the quantity (q) that investors are willing to purchase at that price.
2. If P=, list the numbers in the domain of f, find *f (2900) and*.
3. If , list the numbers in the domain of g, find .

Price/Unit (P)N Quantity Demanded / week (q)

10 3,000

12 2,900

17 2,300

1. 2,000 23marks
2. a).List and explain the types of models that are useful to operations managers.

9marks

b).Given that P=N3, AVC (Average Variable Cost) = N1.80 and the TFC (Total Fixed Cost) = N60,000, (i) What is the breakeven level of output? (ii) Graphically illustrate your answer. 13marks

1. Given the function
2. Find the derivative 7marks
3. Find and 8marks
4. Find and 8marks
5. Given the total cost incurred by an investor for putting up shares for subscription as: TC = 120q – q2 + 0.02q3 and the volume of subscriptions as: P = 114 – 0.25q,
6. Obtain the marginal cost and marginal revenue (return) functions. 9marks
7. At what levels of volume is MC = MR? 13marks