# MACHAKOS UNIVERSITY

**University Examinations for 2019/2020 Academic Year**
**SCHOOL OF BUSINESS AND ECONOMICS**
**DEPARTMENT OF ACCOUNTING BANKING AND FINANCE**
**FIRST YEAR SECOND SEMESTER EXAMINATION FOR**
**CRAFT CERTIFICATE IN BUSINESS MANAGEMENT**
**CRAFT CERTIFICATE IN SUPPLY CHAIN MANAGEMENT**
**BUSINESS CALCULATION & STATISTICS**

**DATE: 30/10/2020**                                         **TIME: 8:30 – 11:30 AM**

**INSTRUCTIONS:**

Answer all the questions

1.  Peter deposited Ksh 200.000 in the fixed deposit account that paid interest at a rate of 16% p.a, compounded semi-annually.

    **Determine:**

    i)      The total amount in the account after 5 years

    ii)     Interest earned on deposit.                               (10 marks)

2.  A businessman based in Kenya imported consignment of 25,000 computer memory cards from his supplier based in London at a rate of 2.25 sterling pounds per card. Other expenses incurred on the consignment included 1,598,500 Kenya shillings on freight charges. 1 percent        insurance charges on the cost of the cards and 50 Kenya shillings per memory card on custom      duty.

    1 sterling pound  = 136 Kenya shillings

**Required:**

    The selling price per memory card in Kenya shillings if the businessman intends to make a profit of 15 percent on total cost.

3.  Mr Julius Mtile purchased a car at beginning of year 2019 at sh 200,000. He decided to use it in his business operations. All motor vehicles for his business are depreciated at the rate of 20% using Reducing balance method.

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**Required:**

a)  Determine the number of years after which the value of the car will reduce to sh 65536

b)  The net book value after the end of the second year.  (10 marks)

4.  Joyce Njambi intends to buy a vacuum cleaner on hire purchase terms. The cash selling prize of the vacuum cleaner is ksh 24,000. The hire purchase terms comprise a deposit of ksh 6000 and 20 percent interest on the outstanding balance. The outstanding balance plus interest is to be paid in 6 equal monthly installments.

**Required:**

    a)  The amount of each monthly installment.

    b)  Rate of compound interest that would be paid over the hire purchase period.

    (10 marks)

5.  Julia Baraka has recently been employed by Ujuzi Limited as a store clerk. She has been offered a starting salary of Ksh 360,000 per year with an annual increment of 10 percent of the previous year's salary.

**Required:**

    Assuming that she has a 35 year working life determine.

    a)  Julia Baraka annual salary in the $35^{th}$ year of working life.

    b)  Total salary that she will have earned during her 35 year working life.  (10 marks)

6.  The selling price of a sewing machine is 20500. If bought for cash, a discount of 15% is given on the selling price. The purchase terms comprise of deposit of 30% of the selling price and 12 monthly installments of 1950 each. Required:

    a)  The cash price of the sewing machine.

    b)  Hire purchase price.

    c)  Difference on price between cash & hire purchase.  (10 marks)

7.  a)  A firms total revenue function is given by $TR=2Q^2 - 8Q$ where Q is the level of output.  Determine the level of output that will maximize total revenue.  (2 marks)

    b)  Asha borrowed a loan of Ksh 800,000 from a bank at a simple interest rate to be repaid in 5 years. She repaid a total of Ksh 1,000,000 to the bank. Determine the interest rate p.a charged.  (2 marks)

    c)  A dealer bought a radio for ksh 6200. He later sold it for ksh 6500. Determine his mark up.

    d)  The price of a product is given by the function

$$P= 800-2Q^2$$

The total cost is given by the function.

TC= 216Q+100

**Determine**

i)      Profit function

ii)     Quantity that maximizes profit.

iii)    Price that maximizes profit                                              (6 marks)

8.    The following are the prices and quantities of four items purchased by a real estate company in the year 2018 and 2019.

| Items | 2018 | | 2019 | |
|---|---|---|---|---|
| | Quantity | price (sh) | Quantity | Price(sh) |
| Doors | 6900 | 850 | 5400 | 980 |
| Cement | 13000 | 740 | 11500 | 810 |
| Glass | 3400 | 40 | 3700 | 55 |
| Bulbs | 8500 | 560 | 4000 | 700 |

**Calculate**

a)    Laspeyres price index

b)    Paasches price index

c)    Fishes price index

d)    Interpret the answers in (i) (ii) & (iii) above.                          (10 marks)

9.    A company has tendered for two contracts A and B. The probability of winning contract A is 2/3 and that of winning contract B is 3/5

Determine the probability of winning.

a)    No contract.

b)    At least one contract

c)    Contract A or B

d)    Contract A and  B                                                    (4 marks)

10.   Mrs. James was employed by Faulu University on 1$^{st}$ Jan 2019 and worked the full year with an annual salary of Ksh 1,440,000.

She was entitled for the following reliefs p.a.

Personal relief    sh 13,944 p.a

Other reliefs     sh 48,000 p.a

Income tax deductions (PAYE) was calculated according to the following schedules.

| Monthly taxable income(sh) | | | Rate of tax % |
|---|---|---|---|
| 1 | - | 10164 | 10 |
| 10165 | - | 19740 | 15 |
| 19741 | - | 29316 | 20 |
| 29317 | - | 38892 | 25 |
| Excess over 38882 | | | 30 |

Required

Calculate his monthly income. (6 marks)

11. a) Maria Biashara acquired a posho mill at a cost of sh 110,000. The posho mill has a useful life of 5 year and scrap value of sh 30,000.

   **Required**
   i) Annual rate of depreciation using reducing balance method.
   ii) Net book value of the posho mill using reducing balance method.
   iii) Net book value of the posho mill using straight line method of depreciation.
   iv) Difference in the net book value using the above two methods.

   (8 marks)

   b) Consider the sequence 2,4,8…….10$^{th}$ term.
   Find the sum of the first 9 terms. (2 marks)