****

**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2018/2019 ACADEMIC YEAR ONE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF PURE AND APPLIED SCIENCES**

**FOR THE DEGREE OF BACHELOR OF EDUCATION**

**COURSE CODE: ACS 101**

**COURSE TITLE: INTRODUCTION TO ACTUARIAL SCIENCE**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 13/02/2020 TIME: 09.00-11.00 AM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of THREE (3) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Define the term actuary and state any four roles of an actuary **[5 marks]**
2. An investor makes an initial investment of Kshs. 100,000 which earns Ksh. 5,000 interest at the end of the year. What is the effective rate of interest for this investment? **[3 marks]**
3. A company wishes to invest Ksh 2,000,000 in 182 days bills from Kenyan government. The bills are currently issued at an annual discount of 10%. Calculate the par value of the bill that can be purchased.  **[4 marks]**
4. Briefly discuss three common features of risk **[3 marks]**
5. Distinguish between the following terms as used in risk
6. Fundamental risk and Particular Risk
7. Pure risk and Speculative risk **[4 marks]**
8. Discuss the four stages of risk management process **[8 marks]**
9. Discuss any two types of fixed income securities. **[2 marks]**

**QUESTION TWO**

1. Discuss different types of insurance contract . **[12 marks]**
2. Complete the entries of the following life table **[3 marks]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age x | lx | dx | px | qx |
| 0 | 100,000 |  |  |  |
| 1 | 99,523 |  |  |  |
| 2 | 89,123 |  |  |  |
| 3 | 87,174 |  |  |  |
| 4 | 86,234 |  |  |  |
| 5 | 85,346 |  |  |  |

1. State the two main purposes of insurance **[4 marks]**
2. Explain how the “principle of indemnity” works in insurance **[1 mark]**

**QUESTION THREE**

1. State two types of financial assets citing examples. **[4 marks]**
2. State two principal functions of financial assets. **[2 marks]**
3. Discuss any three major economic functions of financial markets **[6 marks]**
4. Define the following terms as used in the financial markets **[8 marks]**
5. Deferred Coupon Bonds
6. Certificate of deposit
7. Repurchase agreements
8. Floating Rate Securities

**QUESTION FOUR**

1. An investor puts Kshs 50, 000 in a saving account that pays simple interest at the rate of 10% at the end of each year.

Compare how much the investor would have after 6 months if the money was

1. Invested for six years **[2 marks]**
2. Invested for the three years and then immediately reinvested for a further three years

**[4 marks]**

1. Briefly discuss any five features of a bond **[10 marks]**
2. Define the following symbols as used in actuarial notation **[4 marks]**

**QUESTION FIVE**

Discuss the various stages of actuarial control cycles using a diagram where necessary **[20 marks]**