**SUBSIDIARY MATHEMATICS**

**21/10/2019**

**8h30 am -11h30am**



**SENIOR FIVE END OF YEAR EXAMINATIONS, 2019**

**SUBJECT: SUBSIDIARY MATHEMATICS**

**COMBINATIONS:**

**PHYSICS-CHEMISTRY-BIOLOGY (PCB)**

**BIOLOGY-CHEMISTRY-GEOGRAPHY (BCG)**

**HISTORY-ECONOMICS-GEOGRAPHY (HEG)**

**HISTORY-ECONOMICS-LITERATURE (HEL)**

**LITERATURE-ECONOMICS-GEOGRAPHY (LEG)**

**RELIGIOUS STUDIES-HISTORY-LITERATURE (RHL)**

**RELIGIOUS STUDIES-HISTORY-GEOGRAPHY (RHG)**

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| --- |
|  **/100** **Marks:** |

**DURATION: 3 HOURS**

**INSTRUCTIONS:**

1. Do not open this question paper until you are told to do so.
2. Answer all questions: **100 marks**
3. Use only a **blue** or **black** pen.

**S5 MATH SUBSIDIARY COMPREHENSIVE 2019**

1. Prove the following identities

i) $cos^{4}A- sin^{4}A=\cos(\left(2A\right)) $ **(5marks)**

 ii)$cos^{2}A$ + $\cos(\left(2A\right))$= 2-3$sin^{2}A$ (**5marks)**

 2) Evaluate the following: a) **(3marks)**

 b) **(3marks)**

3)Change the following product into a sum or difference:  **(6marks)**

4)Find an expression for the *n*th term of the following sequence. (**4marks)**



5) What is the common ratio in the following sequence of numbers **(3marks)**

{ 4, 8, 16;32}

6) A body falls  in the first second of its motion,  in the second,  in the third,  in the fourth and so on. How far does it fall during the  second of its motion? **(6marks)**

7) If a man deposits $1300 in a bank at 7% interest compounded annually, how much will be in the bank 17 years later? (**5marks)**

8**)**Solve **(6marks)**

9)Evaluate the  ( **4marks)**

10 .a)Find the derivative of  (**3marks)**

 b)  ( **2marks)**

11)In a class, 20% of the students study English and French . 80% of the students study English .What is the probability of a student studying French given he/she is already studying English? **(6marks)**

12) Solve the following linear system by using inverse matrix Method

 **(10marks)**

 

13) The following table shows the results obtained by S1 Students in History and Geography Tests out of 10mark

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| --- | --- | --- | --- | --- | --- |
| History marks () | 3 | 6 | 4 | 3 | 3 |
| Geography marks() | 5 | 3 | 6 | 1 | 7 |

1. Complete the distribution table below (**12marks)**

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b)Covariance of  and  **( 3marks)**

14)If ;  **(5marks)**

are equal find the value of  and 

15)Calculate **( 5marks)**

16.a) Find the scalar product of vectors  and  **(2marks)**

 b)Calculate  of the vector  above **(2marks)**