

**SUBSIDIARY MATHEMATICS**

**21/10/2019**

**8h30 am -11h30am**

**SENIOR FOUR 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)**

|  |
| --- |
|  **/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.

**S4 MATH SUBSIDIARY COMPREHENSIVE 2019**

1) Rationalise the following :

a)  (**3marks)**

b)  ( **4marks )**

2a) Convert 45° to radians in terms of π**. (2marks)**

 b) Convert  to degrees. (**2marks)**

3)A pack contains 4 blue, 2 red and 3 black pens. If a pen is drawn at random from the pack, replaced and the process repeated 2 more times, What is the probability of drawing 2 blue pens and 1 black pen? **( 8marks)**

4)Find the value of  in the following :

 **(4marks)**

5) Given that 

Determine  **(3marks)**

  **( 3marks)**

6) The sum of two consecutive integers is . Find the integers.  **(6marks)**

7) solve the following system of equation **( 6marks)**



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



9)Given the function ,find its domain of definition **(4marks)**

10)  and  (**8marks)**

 Find

a)  (**2marks)**

b)  (**2marks)**

c)  (**2marks)**

 d)  (**2marks)**

11) Three different Physics books and five other books are to be arranged on a bookshelf. Find:

The number of possible arrangements if the three Physics books must be kept together. (**4marks)**

12) Calculate the following limits

**a)**  **(2marks)**

b)  **( 3marks)**

c)  (**5marks)**

13) Given that  (**5marks)**

Find 

14)a) Find the norm of the vector **( 3marks)**



b) Find the angle between vectors **(4marks)**

 and 

15)The following data shows the results of S2 Students in Kiswahili Test out of 20

 8;3;9;8;9;18;8;9

a) Find the mean marks **(3marks)**

b) Complete the frequency distribution table below **(5marks)**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 8 |  |  |
| 3 |  |  |
| 9 |  |  |
| 8 |  |  |
| 9 |  |  |
| 18 |  |  |
| 8 |  |  |
| 9 |  |  |
|  |  |  |

c) Find the variance **(4marks)**

d)Standard deviation **(3marks)**