

**UNIVERSITY OF ESWATINI  
FACULTY OF EDUCATION  
MAIN EXAMINATION PAPER 2019**

**TITLE OF PAPER:** CURRICULUM STUDIES IN MATHEMATICS II

**COURSE CODE:** CTE532/CTE332/EDC381

**PROGRAMME:** PGCE/B.Ed. 3

**TIME ALLOWED:** THREE (3) HOURS

**INSTRUCTIONS:** ANSWER ANY FOUR QUESTIONS. EACH QUESTION IS WORTH 25 MARKS.

**This paper contains 3 pages including this one**

**DO NOT OPEN THIS PAPER UNTIL INSTRUCTED  
TO DO SO BY THE INVIGILATOR**

### Question 1

You have been appointed HOD for mathematics at a private school. Discuss each of your duties and responsibilities as an HOD at this school using the following as your subsections:

- (i) Organisation
  - (ii) Monitoring
  - (iii) Liaising
  - (iv) Professional Development
- [25]

### Question 2

- (a) Construct an item for each of the types of “quadratic equations” described below:
- (i) A quadratic equation solvable by the balancing method
  - (ii) A quadratic equation solvable by one bracket factorising
  - (iii) A quadratic equation with a coefficient of  $x^2$  equal to 1 and solvable by two brackets factorising
  - (iv) A quadratic equation with a coefficient of  $x^2$  greater than 1 and solvable by two brackets factorising
  - (v) A quadratic equation solvable **ONLY** by the quadratic formula or by completing the square
- [10]
- (b) Prepare a marking guide for each of the items in (a)
- [15]

### Question 3

- a) Describe and state how you would use each the following five purposes of assessments in your work as a teacher of mathematics.
- (i) Instrument for Teaching [3]
  - (ii) Diagnosis [3]
  - (iii) Selection [3]
  - (iv) Prognosis [3]
  - (v) Motivation [3]
- b) List five advantages of objective testing in mathematics.
- [10]

### Question 4

You gave question 3 in appendix 1 to a Form 4 class and 1 of your learners’ response is shown in appendix 2.

- a) Find answers to the question [5]
- b) Analyse the student’s methods and answers to each section. [10]
- c) Comment on how you would help this learner to correct his mistakes. [10]

### Question 5

Write an essay discussing language issues in the teaching and learning of probability in school mathematics.

[25]

**APPENDIX 1**

**3** Paul and Mary go on a 14 night cruise in the Mediterranean.

- (a) The price of the cruise is \$237 per person per night.  
A tax of 6% is added to this price.

Find the total amount Paul and Mary pay for this cruise.

\$..... [3]

- (b) At a port Mary buys 2 bottles of sun cream.  
Each bottle costs \$7.89 .

Work out the change she receives from \$20.

\$..... [2]

- (c) Paul and Mary leave the ship at 09 23 to tour Pisa.  
The tour lasts for  $6\frac{3}{4}$  hours.

Find the time when the tour finishes.

..... [2]

- (d) The ship leaves at 18 40 to sail to the next port.  
It sails 270 km at an average speed of 32.4 km/h.

Find the time when the ship arrives.

..... [3]

- (e) There are 1800 passengers on the ship.  
They are in the ratio males : females = 5 : 4.

Work out the number of male passengers.

..... [2]

APPENDIX 2

3 Paul and Mary go on a 14 night cruise in the Mediterranean.

- (a) The price of the cruise is \$237 per person per night.  
A tax of 6% is added to this price.

Find the total amount Paul and Mary pay for this cruise.

$$1.06 \times 237 = 251.22$$

$$251.22 \times 2 = \$502.44$$

$$\underline{\$502.44} \dots [3]$$

- (b) At a port Mary buys 2 bottles of sun cream.  
Each bottle costs \$7.89.

Work out the change she receives from \$20.

$$\begin{array}{r} \$7.89 \\ \times 2 \\ \hline 15.78 \end{array} \quad \begin{array}{r} 20.00 \\ - 15.78 \\ \hline \$5.32 \end{array}$$

$$\underline{\$5.32} \dots [2]$$

- (c) Paul and Mary leave the ship at 0923 to tour Pisa.  
The tour lasts for  $6\frac{3}{4}$  hours.

Find the time when the tour finishes.

$$\begin{array}{r} 0923 \\ - 0645 \\ \hline 0418 \end{array}$$

$$\underline{4:18 \text{ pm}} \dots [2]$$

- (d) The ship leaves at 1840 to sail to the next port.  
It sails 270 km at an average speed of 32.4 km/h.

Find the time when the ship arrives.

$$S = \frac{d}{t} \quad \therefore 1840 + 0833$$

$$t = \frac{d}{S}$$

$$= \frac{270}{32.4} = 8.33$$

$$\underline{08:13} \dots [3]$$

- (e) There are 1800 passengers on the ship.  
They are in the ratio males : females = 5 : 4.

Work out the number of male passengers.

5 males 4 females

$$\frac{4}{9} \times 1800$$

$$\underline{800 \text{ males}} \dots [2]$$