UNIVERSITY OF GHANA

DEPARTMENT OF TEACHER EDUCATION

SCHOOL OF EDUCATION AND LEADERSHIP

COLLEGES OF EDUCATION

END OF SECOND SEMESTER EXAMINATIONS FOR LEVEL 300, 2022/2023

B.ED. PROGRAMME

COURSE CODE : TEUP 304

COURSE TITLE: TEACHING AND ASSESSING MATHEMATICS FOR UPPER PRIMARY (ADVANCED)

Instruction: Answer **all** questions in Section A and any **three** questions in Section B.

Time: 2 Hours

SECTION A

[25 Marks]

Answer all the questions in this section.

In this section, each question is followed by four options lettered A to D. Read each question carefully and circle the letter that corresponds with the best option on the question paper. Each question carries **(1 mark)**.

1. The assessment that helps students to take more responsibility for their own learning, learn about themselves as learners, and reflect on their work on a regular basis is _____.
   A. Assessment as learning
   B. Assessment for learning
   C. Assessment in learning
   D. Assessment of learning

1

2. Which of the following is NOT TRUE about the LCM and HCF of any two given numbers?
   A. The Highest Common Factor is either less than or equal to the smaller number.
   B. The Least Common Multiple is always greater than the Highest Common Factor.
   C. The Lowest Common Multiple is always greater than both numbers.
   D. The product of the LCM and HCF of the numbers is equivalent to their product.

3. How many times can you divide 999 by 3 without getting a remainder?
   A. 1
   B. 2
   C. 3
   D. 4

4. Which one of the following is a perfect number?
   A. 6
   B. 12
   C. 14
   D. 21

5. In the Roman numeral system, what number does the letters **CLXXI** represent?
   A. 1171
   B. 571
   C. 171
   D. 71

6. How can a number be converted from base ten to base five?
   A. Add 5 to the number repeatedly and write down the differences in reverse order.
   B. Divide the number by 5 repeatedly and write down the remainders in reverse order.
   C. Repeatedly divide the number by 5 and write down the remainders in order of the division.
   D. Subtract 5 from the number repeatedly and write down the sums in reverse order.

7. How many different symbols are needed to represent any number in a base-n system?
   A. n + 1
   B. n
   C. n − 1
   D. n− 2

8. What is the ratio of red marbles to green marbles in a bag that contains 72 red marbles and 48 green marbles?

   A. 1: 3
   B. 1:4
   C. 2: 3
   D. 3: 2

9. Which of the following fractions is equivalent to $\frac{3}{4}$?

   A. $\frac{108}{144}$

   B. $\frac{39}{56}$

   C. $\frac{36}{52}$

   D. $\frac{75}{144}$

10. Which one of the following statements is TRUE about assessment?
   A. Formative assessments are *for* learning, while summative assessments are *of* learning.
   B. Formative assessments are *of* learning, while summative assessments are for learning.
   C. Formative assessments are used at the end of a project, unit, course, or semester.
   D. Summative assessment provides feedback that could help improve pupils' learning.

11. What is the percentage of boys to girls in a class that has 25 boys and 13 girls?
   A. 66.67%
   B. 65.79%
   C. 40%
   D. 33.33%

12. Which one of the following is NOT a characteristic of diagnostic assessments?
   A. They call the attention of teachers to what their students do and do not know.
   B. They help teachers identify problematic areas in the learning of their students.
   C. They identify gaps in students' knowledge and call attention to misconceptions.
   D. They identify which intervention strategies may be needed for lower-level students.

13. Which one of the following is NOT a characteristic of diagnostic assessment?
   A. They are low stake; hence they do not usually contribute to scores.
   B. They help teachers diagnose the students' *skills and knowledge*.
   C. They help teachers decide what to focus on in class while teaching.
   D. They must be written before they can diagnose students' problems.

14. Which one of the following statements is TRUE?
   A. Multiplication and addition are inverse operations.
   B. Multiplication is distributive over division.
   C. The multiplicative identity is zero.
   D. The multiplicative inverse of zero do not exist.

15. A solid has how many dimensions?
   A. 2
   B. 3
   C. 4
   D. 5

16. Which one of the following is NOT a question asked by students during formative assessment?

    A. How can I close the gap?
    B. Where am I going?
    C. Where am I now?
    D. What is my score now?

17. All the following are the benefits of *assessment for learning*, EXCEPT that students _____.

    A. are more motivated to be engaged while learning.
    B. are actively involved in their own assessment.
    C. experience more anxiety while taking the test.
    D. take responsibility for their own learning.

18. Which one of the following is the most appropriate arbitrary unit for measuring the length of the classroom?
    A. Eye gaze
    B. Handspan
    C. Pencil
    D. Strides

19. The process of deriving a fraction's simplest form is _____.

    A. dividing the numerator and denominator by their highest common factor
    B. finding the average of the numerator and denominator
    C. multiplying the numerator and denominator by the same number
    D. multiplying the numerator and denominator by their least common multiple
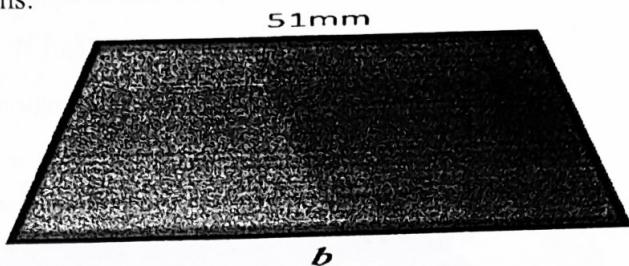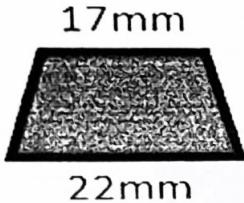
20. What is the angle between the hour hand and the minute hand of a clock at half past three?
    A. 54^0
    B. 63^0
    C. 72^0
    D. 75^0

21. Which one of the following is **NOT** a quadrilateral?
    A. Parallelogram
    B. Pentagon
    C. Rectangle
    D. Square

22. Here are two similar trapeziums:

17mm

51mm

22mm

b

Calculate the length marked b.
A. 39mm
B. 64mm
C. 66mm
D. 88cm

23. Which one of the following is **NOT** a solid shape?
A. Cone
B. Prism
C. Pyramid
D. Trapezium

24. The assessment that teachers use to find out what their learners know and can do, and what confusions, preconceptions, or gaps they might have is called_____.
A. Assessment as learning
B. Assessment for learning
C. Assessment in learning
D. Assessment of learning

25. The statue of a cat is 66cm tall which is three times bigger than the actual cat which was used as the model. How tall is the real cat?

A. 11cm
B. 22cm
C. 33cm
D. 44cm

SECTION B

[75 Marks]

Answer any **THREE** questions in this section.

1   A primary four pupil solves an addition as given below:

         79

     +   65

        1314

Use the information to answer the following questions:

(a)   i.   Identify the problem of this pupil.   4 Marks

       ii.   Using a named material, explain how you would help the pupil overcome his/her problem.   10 Marks

(b)   List **Five** (5) types of formative assessment.   5 Marks

(c)   Mention any **Two** other materials you could have used to teach the same concept.   6 Marks

2   (a)   i.   Explain the concept of place value.   2 Marks

       ii.   Explain any **Two** reasons why you think upper primary pupils should be introduced to the concept of place value.   4 Marks

       iii.   What is the significance of face value and place value in a number system?   6 Marks

(b)   Madam Akua, Mr. Kwame, and Mrs. Oforiwa received some exercise books from Miss Ghana Most Beautiful (2023) for their pupils. Madam Akua received 456 exercise books, Mr. Kwame received 346 exercise books, and Mrs. Oforiwa received 631 exercise books. Using a named material, explain how you would help a primary four pupil determine the number of exercise books that Miss Ghana Most Beautiful gave to the pupils altogether.   10 Marks

(c)   List **Three** (3) types of diagnostic assessment.   3 Marks

3   (a)   Describe how you will use a concrete material to assist a basic six pupil rewrite 125_{six} as a base ten numeral.   10 Marks

(b)   i.   Explain the key difference between diagnostic assessment and formative assessment?   **4 Marks**

       ii.   Explain **Three** (3) importance of assessment in the learning of mathematics.   **6 Marks**

(c)   i.   What is a perfect number?   **2 Marks**

       ii.   List any of the three consecutive perfect numbers.   **3 Marks**

4   (a)   i.   What is micro teaching?   **2 Marks**

           ii.   Explain how you would undertake a micro teaching in your classroom   **10 Marks**

    (b)   Explain any **Five** (5) characteristics of good classroom assessment.   **10 Marks**

    (c)   Explain any **one** (1) role of technology in the teaching and learning of mathematics.   **3 Marks**

5   (a)   Akua's educational assessment began in kindergarten with an interview and an observation. On registration day, Akua and her mother came to school and were interviewed briefly. A teacher rated Akua's cognitive and social-emotional skills. Her development was judged normal, and she attended kindergarten.

During the year, she had difficulty paying attention to the teacher and participating in group activities, although she was neither aggressive nor hostile. She was given a "readiness test" at the end of kindergarten and performed as an average child. Her teacher recommended that she continue on to first grade, but her parents baulked. They did not think she was ready. They took her to a child guidance clinic and requested further psychological assessment. The clinical psychologist administered an individual intelligence test and a "projective test," in which Akua was asked to tell a story about what was happening in each of a set of pictures. The psychologist interviewed her, her parents, and her teacher. The psychologist described her as normal, both in cognitive ability and in social-emotional development.

Her parents withdrew her from the school she was attending and placed her at another school to repeat kindergarten. Later, they reported that, whereas her first experience was difficult for her, her second kindergarten year was a great success. In their view, a teacher who was particularly

sensitive to Akua's needs helped accelerate her cognitive development.   3 Marks
By the end of the year, she had also become more confident and regularly   6 Marks
participated in group activities.   1 Mark

2 Marks

I.   List three of the different assessment strategies that were administered to Akua.

II.   Explain the role of each of the strategies mentioned in (i).   3 Marks

III.   Which of the assessment strategies was more helpful to Akua?

IV.   Explain why you think the assessment strategy was helpful.

V.   Kwame started kindergarten in the same school as Akua did, and he had similar challenges as Akua. What should the teacher and the parents do?

(b)   Arrange the following in ascending order: 10 Marks

$231_{eight}, 100001_{two}, 10100_{two}$ and 120_{four}