PAC INSTITUTE OF TECHNOLOGY AND SOCIAL STUDIES
END OF TERM 1 2024 ASSESSMENT

FORMATIVE ASSESSMENT

Qualification Code : 6

Qualification : COUNSELLING PSYCHOLOGY LEVEL 6

Unit Code : IT/CU/CS/BC/02/6/A

Unit of Competency : Numeracy Skills

TIME: 3 HOURS

WRITTEN ASSESSMENT

INSTRUCTIONS TO CANDIDATE:

1. *Read all the instructions carefully before attempting the question*
2. *This paper consists of three sections, A and B*
3. *You are allowed 3 Hours to Answer the questions*
4. *Marks for each question are indicated in brackets*
5. *Write your responses in the Separate Answer booklet provided*
6. *Do not write anything in this question paper*

SECTION A - 40 MARKS

1. Simplify
   (4marks)

$$\frac{16x^2-4}{4x^2+2x-2} \div \frac{2x+1}{x+1}$$

2. Solve the following inequality and show your solution on a number line. (4 marks)

$$4x - 3 \leq \tfrac{1}{2}(x + 8) < x + 5$$

3. Subtract -74 from 77 (2 Marks)
4. It takes 50 minutes to perform a certain task. Using a new type of tool, the time can be reduced by 15%. Calculate the new time taken. (4 Marks)
5. A construction blueprint uses a scale of 1:100. If the length of a wall on the blueprint is 8 centimeters. Find the actual length of the wall in metres. (3 Marks)
6. Amina sold a car to Judith and made a profit of 20%. After two years Judith sold the car to Boni at Kshs.324, 000, making a loss of 10%. Determine the price at which Amina bought the car. (5 Marks)
7. If three people can complete a task in 4 hours, find how long will take 5 people to complete the same task assuming the rate of the work is constant. (4 Marks)
8. The cost of 7 shirts and 3 pairs of trousers is shs. 2950 while that of 5 pairs of trousers and 3 shirts is less by 200. How much will Dan pay for 2 shirts and 2 pairs of trousers? (4 marks)
9. Sarah had 8 units of competency during her first term in college. She scored the following Marks in each unit, 56, 70, 63, 84, 90, 77, 70 and 81. Find the: -
   i. Median mark (2 Marks)
   ii. (ii) Mean mark (2 Marks)
10. A rectangular board is 820mm long and 400mm wide. Find its area in mm^2 and cm^2. (4 Marks)

SECTION B (60 MARKS)

Answer any three questions

11. Table 1 shows marks obtained by 100 students at Bodex Technical College in Mathematics examination. Determine the: - Table 1

Marks	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94
Frequency	6	14	24	14	X	10	6	4

Find:

a) Value of x; (2Marks)
b) Modal class; (1Marks)
c) Median mark; (5Marks)
d) Mean mark; (6Marks)
e) Standard deviation. (6Marks)

12. A school planned to buy x calculators for a total cost of Ksh 16200. The supplier agreed to offer a discount of Ksh 60 per calculator. The school was then able to get three extra calculators for the same amount of money.
    a. Write an expression in terms of x for the original price of each calculator (4 mark)
    b. Write an expression in terms of x for the price of each calculator after the discount (8 mark)
    c. Form an equation in x and hence determine the number of calculators the school bought (8 marks)

13.
    a) Zawadi is a mother of three children namely John, James and Maria. She divided her monthly income among her children in the ratio 2: 3: 5 respectively. If Maria got Ksh.50,000. Find:

    (i) Zawadi's monthly income. (4 Marks)

    (ii) Amount of money received by John and James. (4 Marks)

    (iii) How much did John receive more than James? (2 Marks)

    b) A metal plate is rectangular in shape with one side 7cm longer than the other. Calculate the dimensions of the plate if it has an area of 228cm2 (5Marks)
    c) A pile of coal weighing 300tonnes is divided between three oil companies A, B and C. Company A got 15%, B got 30% of the remainder and C half of what was left. Find the weight of coal each company received. (5Marks)

14. Four telephone posts PQR and S stand on a level ground such that Q is 28m on a bearing of 060^0 from P. R is 20m to the south of Q and S is 16m on a bearing of 140^0 from P.

(a) Using a scale of 1cm represent 4m show the relative positions of the posts.
(10marks)

(b) Find the distance and bearing of R from S.
(4marks)

(c) If the height of post P is 15.6m. on a separate scale drawing, draw a diagram and determine the angle of depression of bottom of post R from the top of post P.(Same scale as above) (6marks)

Merry Christmas and happy 2025