**DESTINY SECONDSRY SCHOOL**

S.2 MATHEMATICS

TIME: 2HOURS

**INSTRUCTIONS:** ATTEMPT ALL QUESTIONS IN SECTION **A** AND THREE IN SECTION **B.**

1. Express 2.123131……….. as a fraction in its simplest form.
2. Divide 1001011two by 101two and give your answer in binary base.
3. In May, a graph book was being sold shs 3000 in kinubi and the price went up to shs 3400 in June. Find the percentage increase in the price of graph books.
4. Three boys Collin, Ayo and Michael shared shs 10,500 after the days work. Collin got twice as Ayo and Ayo got twice as much as Michael. Find how much Ayo got.
5. Enock bought a phone at shs.400, 000 from a Techno shop after he was given a discount of 20% because the phone was on promotion since it was new on market. Help Enock find the price he would have bought the phone if it was not on promotion
6. Determine the range corresponding to the domine {-3, 0, 1, 4} for the mapping x x2 -1 and represent it on an arrow diagram.
7. Peter was standing at a point (0, 5) while John was at a point (7, 2) pulling a rope to make a straight line. Find the equation of the line formed and state the gradient.
8. Point was translated by vector A = followed by another translation B = . find:
9. A single translation vector that can be used to translate the point.
10. How far is the image from the object?
11. Ajuna has a number when you subtract 2 from it, square the result and add a 6, the answer is 55.what is the number.
12. A trader bought kg packet of sugar and packed it into small pockets of kg each.
13. How many small pockets of kg did the trader get?
14. If the trader sold each small pocket at shs 500.how much money did the trader get.

**SECTION B**

1. If 20% of students in school are male and there are 720 students altogether.
2. What is the percentage of female in school?
3. How many more females than males in school.
4. If 20% of the female students are day scholars, how many female students are in boarding?
5. If all male students are in boarding, and 3 students share a decker, how many deckers are needed to accommodate all the male students?
6. If 10% of the females are expected to attend a party at entry fee ugx 50000, how much money is expected to be collected from the members?
7. A boat sails from part A to B at a distance of 270 km away on a bearing of 065o.Therefore, it changes its course on a bearing of 200o and covers a distance of 640km to part c. lt then sails 300km on a bearing of 290% to part C. It then sails 300km on a bearing of 290% to part D.
8. Using a scale of 1cm: 50km .draw accurate diagram showing the boats journey.
9. Determine the bearing and distance of A from B.
10. If the boat sailed at an average speed of 200kmhr-1. Calculate the time taken for the boat to sail from A to D.
11. Triangle with vertices A(-4,2) B(-1,3) and C(-3,5) was being used to play a game on a Cartesian plane and it was reflected by the line X = Y to give its image A` B` C`. The image was also reflected using vector to give the second image A``B``C``. Find the coordinates of A`B`C` and A``B``C``.
12. Gulu is about 340km away from Kampala. At 7:00am, a car travelling at a steady speed of 60km/hr leaves Kampala for Gulu. One hour and 20 minutes later, a minibus leaves Kampala for Gulu travelling at a constant speed. After an hour of travelling, the minibus gets a puncture at a place 100km from Kampala. It takes 40 minutes to fix the tyre and then resumes travelling non­­­­­­­­­-stop so that it reaches Gulu at mid-day.
13. Using a scale of 2cm: 50km and 3cm: 1hr. Draw on the same graph the journeys of the two vehicles.
14. Use your graph to determine the:
15. Time at which the bus over takes the car.
16. Distance from Gulu, the min-bus over takes the car.
17. Time when the car arrives in Gulu
18. Time taken by the mini-bus driver to wait for the driver of the car in Gulu.
19. Joseph was looking for a unique way of constructing his toy house`s door. He decided to make it triangular in nature making it have the points ABC. He measured AB =8cm, BC = 10.5cm and angle BAC = 37.50. After constructing the triangular door, he the bisected angle ABC to meet AC at D.
20. Construct Joseph`s toy door.
21. Measure i) AC

II) BD

III) Angle ABD

C) Draw an in-circle of triangle ABC and measure its radius.