0).-A newspaper vendor sells three papers to 135 customers, the papers are the Daily times. **3**

1).the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought All the 3 papers. **22**

(2) A newspaper vendor sells three papers to 135 customers, the papers are the Daily times,the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought the Observer only. **31**

(3) A newspaper vendor sells three papers to 135 customers, the papers are the Daily times,the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought the Daily times only. **40**

(4) A newspaper vendor sells three papers to 135 customers, the papers are the Daily times,the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought the Observer and the New Nigeria. **12**

(5) A newspaper vendor sells three papers to 135 customers, the papers are the Daily times,the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought exactly two papers. **39**

(6) A newspaper vendor sells three papers to 135 customers, the papers are the Daily times,the Observer and the New Nigeria. 70 customers buy the Daily times, 60 the Observer, 50 the New Nigeria, 17 buy both the Daily times and the Observer, 15 buy both the Observer and the New Nigeria, 16 the Daily times and New Nigeria. How many customers bought exactly one paper. **93**

(7) ------- is the diagrammatic representation of the relationships between subsets and the corresponding universal set. **Venn diagram**

(8) A prop in the form of an isosceles triangle constructed out of a timber is placed against a vertical wall. If the length of the side along the horizontal ground is 3.4m, what is the length of the hypotenuse to 2 decimal places?. **4.81m**

(9) How many Subsets of {1, 3, 2, 4} are there?. **16**

(10) ax<sup>2</sup> – bx – c = 0 are α and β, find αβ. **-c/a**

(11) Express 2+3i/4-5i in the form x+iy . **7+22i/41**

(12) What is the value of cos(Ɵ+ɸ). **cosƟcosɸ-sinƟsinɸ**

(13) In the department of Mathematics Benson Idahosa University, each student could take at least a course in Mathematics. Two courses were available MTH111 and MTH112. 15 of the students took MTH111 while 25 took MTH112. If 5 of the students could offer both courses,find the number of students that could offer MTH111 and not MTH112. **10**

(14) In the department of Mathematics Benson Idahosa University, each student could take at least a course in Mathematics. Two courses were available MTH111 and MTH112. 15 of the students took MTH111 while 25 took MTH112. If 5 of the students could offer both courses, find the number of students that could offer MTH 112 and not MTH111. **20**

(15) In the department of Mathematics Benson Idahosa University, each student could take at least a course in Mathematics. Two courses were available MTH111 and MTH112. 15 of the students took MTH111 while 25 took MTH112. If 5 of the students could offer both courses, find The total number of students in the department. **Real number**

(16) What is the common ratio of a geometric sequence whose fourth term is 16 and whose eight term is 256. **r=±2**

(17) If M and Z are real, solve the equation mi/1+iz=3m+4i/a+3z. **M=± 2, Z=± 3/4**

(18) Two sets that do not have any element in common are called. **Disjoint**

(19) Given the following pairs of sets A={3,1}, B={4,1,6,3} evaluate A –B. **{}**

(20) The sets that contains all rational and irrational numbers is called. **Real number**

(21) The set that consists of all positive and negative whole number is called. **Intergers**

(22) Let z=3+5i determine find ᴢ-Ž/i. **10**

(23) In the formula method x=(-b±√D)/2a , D is called. **The discriminant**

(24) What is the 35th term of the AP 5, 9, 13,… **141**

(25) Find the sum of the first 4 odd numbers. **16**

(26) Find the real numbers x and y such that 3x+2iy-ix+5y=7+5i. **x = -1, y = 2**

(27) If z = 2-i express z<sup>2</sup> +2z+3 in the form x+iy. **10-6i**

(28) One root of the equation 27x<sup>2</sup> + bx + 8 = 0 is the square of the other. Find the value of b. **-30**

(29) If the intersection of two sets A and B produces another set C which is a Null set. It means that set A and B are. **Disjoint**

(30) Find the sum of first 8 terms of the series 1/27,1/9,1/3,... **121.5**

(31) . If the 7th and 10th terms of a GP are 320 and 2560 respectively, find the series. **5, 10, 20…**

(32) Let the set A={1,2,3}. Determine. **8**

(33) Solve (4+7i) – (2-5i). **2+12i**

(34) Solve (4+7i) – (2-5i). **2+12i**

(35) Write down all the elements of this set C=

{x/x<sup>2</sup>+3x=0}. **{-3,0}**

(36) Let the universal set U={the first seven letters of the alphabet} p ={a, b, d} Q. **{a,b,d,e,f}**

= {a, c, d, g} R= {f, c, a, d}Use the information below to answer questions 42-44 Let the universal set U={the first seven letters of the alphabet}P ={a, b, d}Q = {a, c, d, g} R= {f, c, a, d}Use the information below to answer questions 42-44 Let the universal set U={the first seven letters of the alphabet}P ={a, b, d}Q = {a, c, d, g}R= {f,c, a, d}\Use the information below to answer questions 42-44Let the universal set U={the first seven letters of the alphabet}P ={a, b, d}Q = {a, c, d, g}R= {f, c, a, d} Determine pᴗQ1. **{a,b,d,e,f}**

(37) Let the universal set U={the first seven letters of the alphabet} P ={a, b, d} Q= {a, c, d, g}\r\n R= {f, c, a, d} Determine QᴗP(ᴖR). **{a,d,f,}**

(39) A tree cast a horizontal shadow long. If a line were to be drawn from the end of the shadow to the top of the tree, it would be inclined to the horizontal at . What is the height ofthe tree?. **24m**

(38) Let the universal set U={the first seven letters of the alphabet}P ={a, b, d}Q= {a, c, d, g} R= {f, c, a, dDetermine Rᴖ(P-Q). **{}**

(40) Express 1+√3i in polar form. **2(cos60+isin60)**

(41) If the first term of an AP is 7 and the sum of the first 33 terms is 891. Find the constant difference. **5/4**

(42) Solve (5-3i)(4+7i). **41+23i**

(44) . Express Sin<sup>4</sup>Ɵ in terms of cosine of multiple angles. **1/8(cos4Ɵ+4cos2Ɵ+3)**

(43) A newspaper boy was offered a job on a 7day trial. He is to get paid N0.01 for the first day, N0.03 for the second day and N0.09 for the third day and so on, each day tripling his previousday’s salary. What sum of money will he earn at the end of 7day?. **N10.93** (45) . What are the elements of this set A={x<sup>2</sup>+1:x is an integer, 1<x<5}. **{5,10,17}** (46) Evaluate without using tables 135<sup>0</sup>. **1/√2** (47)Ifα and β are the roots of the quadratic equation 2x<sup>2</sup> +6x –5 =0, form the quadratic equation whose roots are α+1/β, β+1/α. **10x<sup>2</sup> +18x –9 =0** (48) If α and β are the roots of the equation 2x<sup>2</sup> +6x –5 =0, form the equations whose roots are α<sup>3</sup> , β<sup>3</sup>. **8x<sup>2</sup> +396x –125 =0**

(49) If Z=x+iy and Ž =x-iy then Z+Ž is. **2x**

(52) The population of a certain country is increasing at the rate of 5% per year. If the present population is 5million people, what will be the population in 4years from now. **5,788,125**

(51) If an AP has its first term a=1 and its common difference d=1 then. **s<sub>n</sub> =n(n+1)/2**

(50) Without using table or calculator, find the values of Tan300+Tan210/1-Tan300Tan210. **-1/√3**

(53) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}Q = {x/2 < x ≤15, x is odd}R= {x/1< x <20, x is a multiple of 3}Pᴖ(QᴖR)=. **{9,15}**

(54) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}Q = {x/2 < x ≤15, is odd}R= {x/1< x <20, x is a multiple of 3}(QᴖR) =. **{3,9,15}**

(55) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}Q = {x/2 < x ≤15, x is odd}R= {x/1< x <20, x is a multiple of 3}PᴖQ<sup>1</sup>= . **{17}**

(56) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}Q = {x/2 < x ≤15, x is odd}R= {x/1< x <20, x is a multiple of 3}(PᴖQ)ᴖR) =. **{9,15**

(57) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}Q = {x/2 < x ≤15, x is odd}\r\nR= {x/1< x <20, x is a multiple of 3}PᴖR=. **{9,15}**

(58) Given the universal set U={x/1≤ x ≤20, x is an integer}P= {x-1 /10≤ x ≤18, x is even}\r\nQ = {x/2 < x ≤15, x is odd}R= {x/1< x <20, x is a multiple of 3}PᴖQ = **{9,11,13,15}**

(59) An arc PQ of a circle subtends an angle of at the centre O. If the radius of the circle is 12cm. calculate The length of arc PQ. **12.571**

(60) An arc PQ of a circle subtends an angle of at the centre O. If the radius of the circle is 12cm. calculate Area of sector PQ . **75.429cm**

(61) ----- is one of the methods used to prove or show whether or not a certain mathematical statement or equation is correct. **mathematical induction**

(62) Express in the form x+iy (10 Cos290<sup>0</sup>+isin290<sup>0</sup>). **3.42-9.4i**

(63) . Evaluate (Sin50<sup>0</sup> + isin40<sup>0</sup> ). **√2 cos5<sup>0</sup>**

(64) What is the value of Sin Ɵ + sinɸ/cos Ɵ + cos ɸ. **Tan ½ (Ɵ +ɸ)**

(65) Set K consists of all fractions of the form x/x+2 where x is a positive even integer <What is the product of all fractions of set K . **1/10**

(66) . List the element of this set . {x/x-5=0}. **{5}**

(67) Evaluate without using tables Sin<sup>2</sup>225<sup>0</sup> + cos<sup>2</sup>225<sup>0</sup>. **1**

(68) If z<sub>1</sub> = 7 + 3i and z<sub>2</sub> = 2 + 4i, find z<sub>1</sub>z<sub>2</sub>. **2+34i**

(69) 150 students were registered as jambites. 85 were registered for Maths class, 70 for Eng.Class, 50 for both Maths and Eng. How many signed up only for Maths class. **35**

(70) 150 students were registered as jambites. 85 were registered for Maths class, 70 for Eng.Class, 50 for both Maths and Eng. How many signed up for Eng. Only . **20**

(71) 150 students were registered as jambites. 85 were registered for Maths class, 70 for Eng.Class, 50 for both Maths and Eng. What was the number that signed that signed for Math or Eng. **105**

(72) 150 students were registered as jambites. 85 were registered for Maths class, 70 for Eng.Class, 50 for both Maths and Eng. the number of those who signed for neither Math nor Eng. **45**

(73) Without using tables or calculator, find the value of Tan 240<sup>0</sup>. **√3**

(74) When a small tent is erected, the front forms an equilateral triangle. If the tent pole is m long, what is the length of the sides of the tent. **2m**

(75) A bicycle frame is in the form of an isosceles triangle with the horizontal crossbar forming the hypotenuse. If the crossbar is 53cm long, what is the length of each of the other two sides to the nearest cm. **37.5cm**

(76) Evaluate without using tables 2 Sin120<sup>0</sup> + cos 120<sup>0</sup>. **-√3/2**

(77) Using Trig. Formular find, cos 75<sup>0</sup>. **√3-1/2√2**

(78) Express cos <sup>3</sup> Ɵ in terms of cosine of multiple angles. **¼(cos 3Ɵ + 3cos Ɵ)**

(79) Let set A = {a,b,c,d,e}, set B = {p,q,r,s,t}, set C = {p,q,r,s,t,u} which of the following are Equivalent. **answer Set A and B**

(80) Using complex numbers, find the binomial expansion of cos 3Ɵ. **4 (cos <sup>3</sup> Ɵ -3 cos Ɵ**

(81) Express 4+3i in polar form. **5 (cos 36.86<sup>0</sup> +sin 36.86<sup>0</sup>)**

(82) . Find the sum of the first 10 terms of the series 8 + 4 +2 + . **15.98**

(83) If Ž = 4 -3i, then ᴢŽ is. **25**

(84) In the department of Theatre Arts Benson Idahosa University, 46 students were gathered,32 were drummers and 25 were singers. How many of the students were both drummers and singers if 4 of them did not participate. **15**

(85) Find the seventh term of the geometric sequence given by 1/2, 1/4, 1/8, 1/16, ... **1/128**

(86) Express 6 + 9i/1 - 2i in the form x+iy. **-12+21i/5**

(87) If S<sub>n</sub>= an<sup>2</sup> + b<sub>n</sub> and T<sub>1</sub>=-1,T<sub>n</sub> =15; find the value of the constants a and b. **a=2,b=-3**

(88) If z = 2-i express z<sup>2</sup> +2z+3 in the form x+iy. **10-6i**

(89) In the formular method, if D = b<sup>2</sup> - 4ac = 0 , then the roots are. **equal and real**

(90) . Express (1+3i/2+i)<sup>2</sup> in the form x+iy. **2i**

(91) TanA+ TanB is equal to. **tanA + tan B/1 - tan A tan B**

(92) If (k+4), (k+2), and (k+6) are consecutive term of a G.P, find the value of k. **-10/3**

(93) In the formular method, if D = b<sup>2</sup> - 4ac > 0, then the roots are. **Real and different**

(94) A piece of property is worth N40,000 at present, and it is expected to depreciate as follows;N1,450 the first year, N1,400 the second year and N1,350 the third year and so on. Base on estimates, what will the property worth in 15years from now? **N16,500**

(95) Find the value of tan1/2Ɵ when tanƟ is ¾. **t=1/3, or -3**

(96) ------------ is a collection of identifiable objects separated by commas and enclosed in curly bracket. **Set**

(97) If ᴢ= 3+2i then Ž is. **3-2i**

(98) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC = √3cm . Find sin60<sup>0</sup>. **√3/2**

(99) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC = √3 . Find cos60<sup>0</sup>. **1/2**

(100) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC = √3 . Find tan 60<sup>0</sup>. **√3/1**

(101) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC = √3 . Find sin30. **1/2**

(102) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC = √3 . Find cos 30. **√3/2**

(103) Given a right-angled triangle ABC, where AB=1cm, AC = 2cm and BC =√3 . Find tan30. **1/√3**

(104) ---- is a diagrammatic representation of the relationships between subsets and the corresponding universal set. **Venn diagram**

(105) The intersection of two sets say A and B is written as. **A∩B**

(106) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A. **{1,3,5,7,9}**

(107) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A∩B. **{ }**

(108) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A ꓴ B ꓴ C. **{1,2,3,4,5,6,7,8,9,10}**

(109) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A∩B∩C. **{ }**

(110) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A∩B ꓴ C. **{1,2,4,5, 7 }**

(111) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find Áꓴ B. **{1,3,5,7,9}**

(112) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A-B. **{2,4,6,8,10}**

(113) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find B-A. **{1,3,5,7,9}**

(114) Given the universal set U={1,2,3,4,5,6,7,8,9,10} , A ={2,4,6,8,10}, B = {1,3,5,7,9}, C={1,2,4,5, 7 }. Find A∩C. **{2,4}**

(116) If the quadratic equation px<sup>2</sup> +3x –9 =0, has equal roots. What is the value of p? **-1/4**

(115) If α andβ are the roots of the equation 2x<sup>2</sup> +6x –5 =0, form the equations whose roots are α/ β, β/ α. **5x<sup>2</sup>+28x +5=0**

(117) Evaluate 2+3i/3+4i. **18+i/25**

(118) Write out the members of this Set E = {x/(x-2)(x+7)=0}. **{2,-7}**

(120) if z<sub>1</sub>= 4(cos 30<sup>0</sup> + isin30<sup>0</sup>) and\r\n z<sub>2</sub>= 2(cos 40<sup>0</sup> +i sin40<sup>0</sup>) then z<sub>1</sub>z<sub>2</sub> = **8(cos 70<sup>0</sup> + isin70<sup>0</sup>)**

(119) In the formular method, if D = b<sup>2</sup> - 4ac < 0 , then the roots are. What is the sum of the first 4 odd numbers. **Complex**

(122) The sum of terms s<sub>n</sub> of a Geometric progression is given as. **s<sub>n</sub> = a(r<sup>n</sup> - 1)/r-1**

(123) Find the sum of the first 10 terms of the G.P 3, 6, 12, 24,… **3069**

(124) Solve (4+5i) + (3-2i). **7+3i**

(127) if SinƟ= 4/5 and cos α=5/13, evaluate without using tables cos(Ɵ+ α). **63/65**

(126) if SinƟ= 4/5 and cos α=5/13, evaluate without using tables Sin(Ɵ+ α). **56/65**

(125) if Z= 4(cos 70<sup>0</sup> + isin70<sup>0</sup>) find z<sup>1/2</sup. **2(cos 35<sup>0</sup> + isin35<sup>0</sup>)**

(128) \r\nif SinƟ= 4/5 and cos α=5/13, evaluate without using tables tan(Ɵ+ α) . **-56/33**

(129) the set that contains all elements in set A or set B or both is called. **Union of set A and B**

(130) If Z <sub>1</sub> = 12(cos 65<sup>0</sup> + isin65<sup>0</sup>) and z<sub>2</sub> = 4(cos 43<sup>0</sup> +i sin45<sup>0</sup>) then z<sub>1</sub>/z<sub>2</sub>. **3(cos 22<sup>0</sup> + isin22<sup>0</sup>)**

(131) The sum of terms s<sub>n</sub> of an arithmetic progression is given as. **s<sub>n</sub> = n[2a+(n-1)d]/2**