

# UNIVERSITY OF IBADAN

## Post UTME Past Questions and Answers

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POST-UTME PRACTICE QUESTIONS & ANSWERS

### MATHEMATICS

1.  $(1.28 \times 10^4) \div (6.4 \times 10^2)$  equals D  
(A)  $2 \times 10^{-5}$  (B)  $2 \times 10^{-1}$  (C)  $2 \times 10^0$  (D)  $2 \times 10^1$  (E)  $2 \times 10^5$
2. A man and wife went to buy an article costing ₦400. The woman had 10% of the cost and the man 40% of the remainder. How much did they have altogether? C  
(A) ₦216 (B) ₦200 (C) ₦184 (D) ₦144 (E) ₦100
3. Add the same number to the numerator and denominator of  $\frac{3}{18}$ . If the resulting fraction is  $\frac{1}{2}$ , then the number added is D  
(A) 13 (B) 14 (C) 15 (D) 12 (E) 11
4. After getting a rise of 15%, a man's new monthly salary is ₦345. How much per month did he earn before the increase? C  
(A) ₦330 (B) ₦396.75 (C) ₦300 (D) ₦293.25 (E) ₦360
5. Assuming  $\log_e 4.4 = 1.4816$  and  $\log_e 7.7 = 2.0142$ , then the value of  $\log_e \frac{1}{4}$  is A  
(A) 0.5326 (B) 3.4958 (C) 0.4816 (D) 0.0142 (E) 1.3594
6. Evaluate  $2^{\square} + 4^{\square/\square}$  C  
(A)  $\frac{1}{4}$  (B)  $\frac{5}{4}$  (C)  $\frac{9}{4}$  (D) 4 (E) 9
7. Evaluate correct to 4 decimal places  $827.51 \times 0.015$ . B  
(A) 8.8415 (B) 12.4127 (C) 124.1265 (D) 12.4120 (E) 114.1265
8. Express 130 kilometres per second in metres per hour. B  
(A)  $7.8 \times 10^5$  (B)  $468 \times 10^6$  (C) 7,800,000 (D)  $4.68 \times 10^6$  (E)  $780 \times 10^6$
9. Find the square root of  $170-20\sqrt{30}$  C  
(A)  $2\sqrt{10}-5\sqrt{3}$  (B)  $3\sqrt{5}-8\sqrt{6}$  (C)  $2\sqrt{5}-5\sqrt{6}$  (D)  $5\sqrt{5}-2\sqrt{6}$  (E)  $5\sqrt{10}-2\sqrt{3}$
10. If  $(25)^{x-1} = 64(5/2)^6$ , then x has the value B  
(A) 7 (B) 4 (C) 32 (D) 64 (E) 5
11. If a circular paper disc is trimmed in such a way that its circumference is reduced in the ratio 2:5, in what ratio is the surface area reduced? D  
(A) 8:125 (B) 2:5 (C) 8:25 (D) 4:25 (E) 4:10
12. In base ten, the number 101101 (base 2) equals C  
(A) 15 (B) 4 (C) 45 (D) 32 (E) 90
13. Simplify  $\frac{\square^{\square} \square^{\square} \square^{\square}}{\square^{\square} \square^{\square}}$  C  
(A)  $5^{\square} \square^{\square}$  (B)  $5^{\square} \square^{\square}$  (C)  $5^{\square}$  (D)  $5^{\square} \square^{\square}$  (E)  $5^{\square}$
14. Simplify  $\frac{(\square^{\square}/\square)\square^{\square}/\square^{\square}/\square^{\square}}{(\square^{\square}/\square)}$  E  
(A)  $\square^{\square}/\square$  (B)  $\square^{\square}/\square$  (C)  $\square^{\square} + 1$  (D) a (E)  $\square^{\square}/\square$
15. Simplify  $\square^{\square}/\square^{\square} \square^{\square} h^{\square}/\square \div \square^{\square}/\square^{\square} \square^{\square} h^{\square}/\square$  A  
(A)  $(\square/\square h)^{\square}$  (B)  $\square^{\square} \square^{\square} h^{\square}$  (C)  $\square^{\square} \square^{\square} h^{\square}$  (D)  $\frac{\square}{\square^{\square}}$
16. Simplify  $2^{\square} - 1^{\square} \times \square$

- (E)  $\frac{1}{6}$   $\frac{13}{20}$   $\frac{11}{30}$   $\frac{9}{4}$   $\frac{5}{3}$  A
17. Solve the system of equations:  $2^{x+y} = 32$ ,  $3^{x-y} = 27$  A  
 (A) (3, 2) (B) (-3, 2) (C) (3, -2) (D) (-3, -2) (E) (2, 2)
18. The annual profits of a transport business were divided between the two partners A and B in the ratio 3:5. If B receives ₦3,000 more than A, the total profit was: C  
 (A) ₦5,000 (B) ₦1,800 (C) ₦12,000 (D) ₦24,000 (E) ₦8,000
19. The diameter of a metal rod is measured as 23.40cm to four significant figures. What is D

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- the maximum error in the measurement?  
(A) 0.05cm (B) 0.5cm (C) 0.045cm (D) 0.005cm (E) 0.004cm
20. The ratio of the price of a loaf of bread to the price of a packet of sugar in 1975 was  $r:t$ , in 1980 the price of a loaf went up by 25% and that of a packet of sugar by 10%. Their new ratio is now  
(A) 40r:50t (B) 44r:50t (C) 50r:44t (D) 55r:44t (E) 44r:55t C
21. The sum of  $3\frac{7}{8}$  and  $1\frac{1}{3}$  is less than the difference between  $\frac{3}{8}$  and  $1\frac{2}{3}$  by (A)  $3\frac{2}{3}$  (B)  $5\frac{1}{4}$  (C)  $6\frac{1}{2}$  (D) 0 (E)  $8\frac{1}{8}$  C
22. Two distinct sectors in the same circle subtend  $100^\circ$  and  $30^\circ$  respectively at the centre of the circle. Their corresponding arcs are in the ratio  
(A) 1:100 (B) 3:1 (C) 5:2 (D) 10:3 (E) 13:30 D
23. What is  $\square\square\square\square(49^\square) - \square\square\square\square(0.01)$ ? D  
(A) ~~49~~ $\square\square 100$  (B)  $\square/2 + 2$  (C)  $7^{\square\square} + 2$  (D)  $2\square + 2$  (E)  $\frac{2\square}{2}$
24. What is the number whose logarithm to base 10 is .3482? E  
(A) 223.6 (B) 0.2228 (C) 2.235 (D) 22.37 (E) 0.02229
25. When a dealer sells a bicycle for ₦81 he makes a profit of 8%. What did he pay for the bicycle? C  
(A) ₦73 (B) ₦74.52 (C) ₦75 (D) ₦75.52 (E) ₦87.48
26. Write the decimal number 39 to base 2. A  
(A) 100111 (B) 110111 (C) 111001 (D) 100101 (E) 19.5
27. A father is now three times as old as his son. Twelve years ago, he was six times as old as his son. How old are the son and the father? E  
(A) 20 and 45 (B) 100 and 150 (C) 45 and 65 (D) 35 and 75 (E) 20 and 60
28. A steel ball of radius 1cm is dropped into a cylinder of radius 2cm and height 4cm. If the cylinder is now filled with water, what is the volume of the water in the cylinder? A  
(A)  $44/3 \square \text{cm}^3$  (B)  $12 \square \text{cm}^3$  (C)  $38/3 \square \text{cm}^3$  (D)  $40/3 \square \text{cm}^3$  (E)  $32/33 \square \text{cm}^3$
29. Find a two-digit number such that three times the tens digit is 2 less than twice the units digit, and twice the number is 20 greater than the number obtained by reversing the digits. D  
(A) 24 (B) 42 (C) 74 (D) 47 (E) 72
30. Find the roots of the equation  $10\zeta^\square - 13\zeta - 3 = 0$  E  
(A)  $x = 3/5$  or  $-1/2$  (B)  $x = 3/10$  or  $-1$  (C)  $x = -3/10$  or  $1$  (D)  $x = 1/5$  or  $-3/2$  (E)  $x = -1/5$  or  $3/2$
31. If a function is defined by  $\square(\zeta + 1) = 3\zeta^\square - \zeta + 4$ , find  $\square(0)$ . D  
(A) 4 (B) 6 (C) 0 (D) 8 (E) 2
32. If  $\sin x$  equals cosine  $x$ , what is  $x$  in radians? C  
(A)  $\pi/2$  (B)  $\pi/3$  (C)  $\pi/4$  (D)  $\pi/6$  (E)  $\pi/12$
33. If  $x^2 + 4 = 0$ , then  $x =$  E  
(A) 4 (B) -4 (C) 2 (D) -2 (E) none of these
34. In a geometric progression, the first term is 153 and the sixth term is  $17/27$ , the sum of the first four terms is B  
(A)  $860/3$  (B)  $680/3$  (C)  $608/3$  (D)  $806/3$  (E)  $680/27$
35. List all integer values of  $x$  satisfying the inequality  $-1 < 2\zeta - 5 \leq 5$  C  
(A) 2,3,4,5 (B) 2,5 (C) 3,4,5 (D) 2,3,4 (E) 3,4
36. Make  $c$  the subject of the equation  $\square(\square + \square) + \square - 2 = 0$  D

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- (A)  $\square = 2\square - 5 - \square / \square\square$  (B)  $\square = 5 - 2\square - \square / \square\square$  (C)  $\square = 5 - 2\square - \square\square / \square\square$  (D)  $\square = 2\square - 5 - \square\square / \square\square$  (E)  $\square = 2\square - \square\square - 5 / \square\square$
37. Multiply  $(3b + 5b + 4c)$  by  $(2b - 3b + c)$  A
- (A)  $6b^2 + 3b^2 - 15b^2 + 4b^2 + 11bc - 5b^2$  (B)  $6b^2 + 3b^2 - 15b^2 + 4b^2 + 11bc - 5b^2$   
(C)  $6b^2 + 3b^2 - 15b^2 + 4b^2 + 13bc - 8b^2$   
(D)  $6b^2 + 5b^2 - 15b^2 + 4b^2 + 13bc + 6b^2$   
(E)  $6b^2 + 3b^2 - 15b^2 + 4b^2 + 13bc - 7b^2$
38. Multiply  $(b + 3b + 5)$  by  $(2b^2 + 5b + 2)$  B
- (A)  $2b^3 + 3b^3 + 10b^2 + 15b^2 + 13b + 10b^2 + 2b + 10$   
(B)  $2b^3 + 6b^3 + 5b^2 + 15b^2 + 31b + 10b^2 + 2b + 10$   
(C)  $2b^3 + 3b^3 + 5b^2 + 10b^2 + 13b + 5b^2 + 2b + 10$   
(D)  $2b^3 + 6b^3 + 5b^2 + 15b^2 + 13b + 10b^2 + 2b + 10$   
(E)  $2b^3 + 2b^3 + 10b^2 + 10b^2 + 31b + 5b^2 + 2b + 10$
39. Multiply  $b^2 + b + 1$  by  $b^2 - b + 1$  B
- (A)  $b^4 + 3b^3 + b^2 + 1$  (B)  $b^4 + b^3 + 1$  (C)  $b^4 + 4b^3 - 6b^2 + 1$  (D)  $b^4 - 6b^3 - 4b^2 + 1$  (E)  $b^4 - b^3 - b^2 + b + 1$
40. The factors of  $6b^2 - 5b - 4$  are D
- (A)  $-(b + 3)(b + 2)$  (B)  $(b - 5)(b - 1)$   
(C)  $-(b + 5)(b + 1)$  (D)  $(b - 5)(1 - b)$  (E)  $(b + 5)(1 - b)$
41. The quantity  $(x + y)$  is a factor of A. D
- (A)  $b^2 + b^2$  (B)  $b^2 - b^2$  (C)  $2b^2 - 3b^2 + b^2 - b^2 + 1$   
(D)  $2b^2 + 2b^2 - b^2 + 3b^2 - b^2 + 3b^2$  (E)  $b^2 - b^2$
42. The set of values of  $x$  and  $y$  which satisfies the equations  $x^2 - y - 1 = 0$  and  $y - 2x + 2 = 0$  is A
- (A) 1, 0 (B) 1, 1 (C) 2, 2 (D) 0, 2 (E) 1, 2
43. The solution of the equation  $b^2 - 2b = 8$  is B
- (A)  $x = 0$  or  $2$  (B)  $x = -2$  or  $4$  (C)  $x = 2$  (D)  $x = -4$  (E)  $x = 2$  or  $4$
44. The solution of the quadratic equation  $\square b^2 + \square b + \square = 0$  is given by A
- (A)  $b = \frac{-\square \pm \sqrt{\square^2 - 4\square\square}}{2\square}$  (B)  $b = \frac{-\square \pm \sqrt{\square^2 - 4\square\square}}{\square}$  (C)  $b = \frac{-\square \pm \sqrt{\square^2 - 4\square\square}}{\square}$   
(D)  $b = \frac{-\square \pm \sqrt{\square^2 - 4\square\square}}{\square}$  (E)  $b = \frac{-\square \pm \sqrt{\square^2 - 4\square\square}}{\square}$
45. The sum of the root of a quadratic equation is  $\square$  and the product of its roots is 4. The quadratic equation is B
- (A)  $2b^2 + 5b + 8 = 0$  (B)  $2b^2 - 5b + 8 = 0$  (C)  $2b^2 - 8b + 5 = 0$   
(D)  $2b^2 + 8b - 5 = 0$  (E)  $2b^2 + 5b - 8 = 0$
46. Three numbers  $x$ ,  $y$  and  $z$  are connected by the relationships  $b = \frac{\square}{\square}b + 1$  and  $c = \frac{\square}{\square}b$ . C
- If  $x = 99$ , find  $z$ .
- (A)  $6^{1/3}$  (B) 20 (C) 21 (D)  $176^{4/9}$  (E) None of the above
47. What factor is common to all the expressions:  $b^2 - b$ ,  $2b^2 + b - 1$  and  $b^2 - 1$ ? D
- (A)  $x$  (B)  $x - 1$  (C)  $x + 1$  (D) No common factor (E)  $(2x - 1)$
48. A canal has rectangular cross section of width 10cm and breadth 1m. If water of uniform density  $1\text{gm cm}^{-3}$  flows through it at a constant speed of 1000mm per minute, the adjacent sea is A

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- (A) 100,000 (B) 1,000,000 (C) 120,000 (D) 30,000 (E) 350,000
49. A cuboid has a diagonal of length 9cm and a square base of side 4cm. What is its height? B  
(A) 9cm (B)  $\sqrt{65}$ cm (C)  $4\sqrt{2}$ cm (D) 7cm (E) 6.5cm
50. A cylinder of height  $h$  and radius  $r$  is open at one end. Its surface area is E  
(A)  $2\pi rh$  (B)  $\pi r^2 h$  (C)  $2\pi rh + 2\pi r^2$  (D)  $\pi rh + \pi r^2$  (E)  $2\pi rh + \pi r^2$
51. A pyramid is constructed on a cuboid. The figure has E  
(A) 12 faces (B) 13 vertices (C) 14 edges (D) 15 edges (E) 16 edges
52. A quadrant of a circle of radius 6cm is cut away from each corner of a rectangle 25cm long and 18cm wide. Find the perimeter of the remaining figure. B  
(A) 38cm (B)  $(38 + 12\pi)$ cm (C)  $(86 - 12\pi)$ cm (D)  $(86 - 6\pi)$ cm (E)  $(86 + 12\pi)$ cm
53. A rectangular picture 6cm by 8cm is enclosed by a frame  $\frac{1}{2}$ cm wide. Calculate the area of the frame. A  
(A) 15sq.cm (B) 20sq.cm (C) 13sq.cm (D) 16sq.cm (E) 17sq.cm
54. A regular hexagon is constructed inside a circle of diameter 12cm. The area of the hexagon is C  
(A)  $36\sqrt{3}$ cm<sup>2</sup> (B)  $36/\sqrt{3}$ cm<sup>2</sup> (C)  $54\sqrt{3}$ cm<sup>2</sup> (D)  $54/\sqrt{3}$ cm<sup>2</sup> (E)  $54\sqrt{3}$ cm<sup>2</sup>
55. A regular hexagon is constructed inside a circle of diameter 12cm. The area of the hexagon is C  
(A)  $36\sqrt{3}$ cm<sup>2</sup> (B)  $36/\sqrt{3}$ cm<sup>2</sup> (C)  $54\sqrt{3}$ cm<sup>2</sup> (D)  $54/\sqrt{3}$ cm<sup>2</sup> (E)  $54\sqrt{3}$ cm<sup>2</sup>
56. A solid cylinder of radius 3cm has a total surface area of  $36\pi$ cm<sup>2</sup>. Find its height. B  
(A) 2cm (B) 3cm (C) 4cm (D) 5cm (E) 6cm
57. A square of cardboard is taped at the perimeter by a piece of ribbon 20cm long. What is the area of the board? B  
(A) 20sq.cm (B) 25sq.cm (C) 36sq.cm (D) 100sq.cm (E) 16sq.cm
58. A triangle has angles  $30^\circ$ ,  $15^\circ$  and  $135^\circ$ , the side opposite to the angle  $30^\circ$  is length 6cm. The side opposite to the angle  $135^\circ$  is equal to C  
(A) 12cm (B) 6cm (C)  $6\sqrt{2}$ cm (D)  $12\sqrt{2}$ cm (E)  $6\sqrt{3}$ cm
59. An isosceles triangle of sides 13cm, 13cm, 10cm is inscribed in a circle. What is the radius of the circle? A  
(A)  $7\frac{1}{2}$ cm (B) 12cm (C) 8cm (D) 7cm (E)  $\sqrt{69}$ cm
60. Differentiate  $x^2 - \frac{1}{x}$  with respect to  $x$ . E  
(A)  $4x^2 - 2 - 2/x^2$   
(B)  $4x^2 - 2 + 2/x^2$  (C)  $4x^2 - 3x + 2/x$  (D)  $4x^2 - 4x + 2/x$  (E)  $4x^2 - 2 + 2/x^2$
61. Find the area of the curved surface of a cone whose base radius is 6cm and whose height is 8cm (Take  $\pi = 22/7$ ). A  
(A) 188.57cm<sup>2</sup> (B) 1320cm<sup>2</sup> (C) 188cm<sup>2</sup> (D) 188.08cm<sup>2</sup> (E) 100cm<sup>2</sup>
62. Find the total surface area of a solid cone of radius  $2\sqrt{3}$ cm and slanting side  $4\sqrt{3}$ cm. D  
(A)  $8\sqrt{3}$ cm<sup>2</sup> (B)  $24\sqrt{3}$ cm<sup>2</sup> (C)  $15\sqrt{3}$ cm<sup>2</sup> (D)  $36\sqrt{3}$ cm<sup>2</sup> (E)  $30\sqrt{3}$ cm<sup>2</sup>
63. If the four interior angles of a quadrilateral are  $(p+10)^\circ$ ,  $(p-30)^\circ$ ,  $(2p-45)^\circ$  and  $(p+15)^\circ$ , then  $p$  is B  
(A)  $125^\circ$  (B)  $82^\circ$  (C)  $135^\circ$  (D)  $105^\circ$  (E)  $60^\circ$
64. If the hypotenuse of a right angled isosceles triangle is 2, what is the length of each of the other sides? A  
(A)  $\sqrt{2}$  (B)  $1/\sqrt{2}$  (C)  $2/\sqrt{2}$  (D) 1 (E)  $\sqrt{2} - 1$
65. If the value of  $\pi$  is taken to be  $22/7$ , the area of a semicircle of diameter 42m is E

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- (A)  $5544m^2$  (B)  $1386m^2$  (C)  $132m^2$  (D)  $264m^2$  (E)  $693m^2$
66. In a circle of radius 10cm, a cord of length 10cm is  $x$ cm from its centre where  $x$  is (A)  $10\sqrt{2}$  (B)  $5\sqrt{3}$  (C)  $10\sqrt{3}$  (D)  $5\sqrt{2}$  (E) 10 B
67. PQRS is a cyclic quadrilateral with PQ as diameter of the circle. If  $\angle PQS = 15^\circ$ , find  $\angle QRS$ . (A)  $75^\circ$  (B)  $37\frac{1}{2}^\circ$  (C)  $127\frac{1}{2}^\circ$  (D)  $105^\circ$  (E) None of the above D
68. The difference between the length and width of a rectangle is 6cm and the area is  $135cm^2$ . What is the length? (A) 25cm (B) 18cm (C) 15cm (D) 24cm (E) 27cm C
69. At what value of  $x$  does the function  $y = -3 - 2x + x^2$  attain a minimum value? (A) 4 (B) 2 (C) -1 (D) -4 (E) 1 E
70. Differentiate  $\frac{4x^2 - 2}{x^2}$  with respect to  $x$ . (A)  $4x^2 - 2 - 2/x^2$  (B)  $4x^2 - 2 + 2/x^2$  (C)  $4x^2 - 3x^2 + 2/x^2$  (D)  $4x^2 - 4x^2 - 2/x^2$  (E)  $4x^2 - 6 + 2/x^2$  E
71. Evaluate  $\int_0^{\pi/2} (\sin^2 x - 2\cos^2 x) dx$  (A) 4 (B) 2 (C)  $\frac{1}{2}$  (D)  $\frac{1}{4}$  (E)  $\frac{1}{8}$  C
72. Find the derivative of  $y = \sin^2(2x^2 + 3x - 4)$ . (A)  $-2\sin(2x^2 + 3x - 4)$  (B)  $-(6x + 3)\sin(2x^2 + 3x - 4)$  (C)  $2\sin(2x^2 + 3x - 4)$  (D)  $(6x + 3)\sin(2x^2 + 3x - 4)$  (E)  $2\sin(2x^2 + 3x - 4)$  D
73. If  $y = \frac{1}{2}\sin x + \cos x$ , find  $y'$ . (A)  $\frac{1}{2}\cos x - \sin x$  (B)  $\frac{1}{2}\cos x + \sin x$  (C)  $\frac{1}{2}\sin x + \cos x$  (D)  $\frac{1}{2}\sin x + \cos x$  (E)  $\frac{1}{4}\sin x + \cos x$  C
74. If the maximum value of  $y = 1 + hx - 3x^2$  is 13, find  $h$ . (A) 13 (B) 12 (C) 11 (D) 10 (E) 14 B
75. If  $s = (2 + 3t)(5t - 4)$ , find  $\frac{ds}{dt}$  when  $t = 2$ . (A) 0 unit per sec. (B) 15 units per sec. (C) 22 units per sec. (D) 26 units per sec. (E) 24 units per sec. C
76. If  $y = 3 \cos 4x$ , find  $y'$ . (A) -6 (B) 57 (C) -54 (D) 27 (E) -27 D
77. Integrate  $\frac{1}{\sin 2x}$  with respect to  $x$ . (A)  $6\sin 8x$  (B)  $-24\sin 4x$  (C)  $12\sin 4x$  (D)  $-12\sin 4x$  (E)  $24\sin 4x$  E
78. Integrate  $\frac{1}{\sin^2 x}$  with respect to  $x$ . (A)  $\frac{1}{\sin x} + \frac{1}{\cos x}$  (B)  $\frac{1}{\sin x} - \frac{1}{\cos x}$  (C)  $\frac{1}{\sin x} + \frac{1}{\sin^2 x}$  (D)  $\frac{1}{\sin x} - \frac{1}{\sin^2 x}$  (E)  $\frac{1}{\sin x} - \frac{1}{\cos^2 x}$  E
79. Integrate  $\frac{1}{\sin^2 x}$  with respect to  $x$ . (A)  $\frac{1}{\sin x} + \frac{1}{\cos x}$  (B)  $\frac{1}{\sin x} - \frac{1}{\cos x}$  (C)  $\frac{1}{\sin x} + \frac{1}{\sin^2 x}$  (D)  $\frac{1}{\sin x} - \frac{1}{\sin^2 x}$  (E)  $\frac{1}{\sin x} - \frac{1}{\cos^2 x}$  E

80. The derivative of cosec  $x$  is

B

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- (A)  $\tan x \operatorname{cosec} x$  (B)  $-\cot x \operatorname{cosec} x$  (C)  $\tan x \sec x$  (D)  $-\cot x \sec x$  (E)  $\cot x \operatorname{cosec} x$
81. The minimum value of  $y$  in the equation  $y = x^2 - 6x + 8$  is (A) 8 (B) 3 (C) 0 (D) -1 (E) 5 D
82. The slope of the tangent to the curve  $y = 2x^2 - 2x + 5$  at the point (1, 6) is (A) 4 (B) 1 (C) 6 (D) 5 (E) 3 C
83. Two  $\frac{v}{a}$  and  $\frac{r}{3}$  are in the ratio 3:2. Find  $y$  in terms of  $x$ . (A)  $2x^2 - 3x + 5$  (B)  $2x^2 - 3x + 3$  (C)  $2x^2 - 3x$  (D) 4 (E) 6 B
84. 7 pupils of average age 12 years leave a class of 25 pupils of average age 14 years. If 6 new pupils of average age 11 years join the class, what is the average age of the pupils now in the class? (A) 13 years (B) 12 years 7½ months (C) 13 years 5 months (D) 13 years 10 months (E) 11 years A
85. A bag contains 4 white balls and 6 red balls. Two balls are taken from the bag without replacement. What is the probability that they are both red? (A)  $\frac{1}{3}$  (B)  $\frac{2}{9}$  (C)  $\frac{2}{15}$  (D)  $\frac{1}{5}$  (E)  $\frac{3}{5}$  E
86. Bola chooses at random a number between 1 and 300. What is the probability that the number is divisible by 4? (A)  $\frac{1}{3}$  (B)  $\frac{1}{4}$  (C)  $\frac{1}{5}$  (D)  $\frac{4}{300}$  (E)  $\frac{1}{300}$  B
87. Determine the mean monthly salary of 50 employees of a company from the following frequency distribution: B
- | Monthly salary | Frequency |
|----------------|-----------|
| N20,000.00     | 10        |
| N32,500.00     | 5         |
| N10,000.00     | 20        |
| N12,000.00     | 2         |
| N6,000.00      | 10        |
| N8,000.00      | 3         |
- (A) N21,500.30 (B) N13,400.10 (C) N14,300.10 (D) N8,000.00 (E) N5,000.30 C
88. Find the mean deviation of 1, 2, 3 and 4. (A) 2.5 (B) 2.0 (C) 1.0 (D) 1.5 (E) 1.2 C
89. If  $M$  represents the median and  $D$  the mode of the measurements 5, 9, 3, 5, 7, 5, 8, then  $(M, D)$  is (A) (6, 5) (B) (5, 8) (C) (5, 7) (D) (5, 5) (E) (7, 5) D
90. In a basket of fruits, there are 6 grapes, 11 bananas and 13 oranges. If one fruit is chosen at random, what is the probability that the fruit is either a grape or a banana? (A)  $\frac{17}{30}$  (B)  $\frac{11}{30}$  (C)  $\frac{6}{30}$  (D)  $\frac{5}{30}$  (E)  $\frac{7}{3}$  A
91. In a school, 220 students offer Biology or Mathematics or both, 125 offer Biology and 110 Mathematics. How many offer Biology but not Mathematics? (A) 95 (B) 80 (C) 125 (D) 110 (E) 120 D
92. In a school, there are 35 students in Class 2A and 40 in class 2B. The mean score for class 2A in an English literature examination is 60.0 and that for 2B in the same paper is 52.5. Find to one place of decimals, the mean for the combined classes. B

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POST-UTME PRACTICE QUESTIONS & ANSWERS  
MATHEMATICS

- (A) 1.5 (B) 56.0 (C) 56.2 (D) 56.3 (E) 56.5
93. In a soccer competition in one season, a club had scored the following goals: 2, 0, 3, 3, 2, 1, 4, 0, 0, 5, 1, 0, 2, 2, 1, 3, 1, 4 and 1. The mean, median and mode are respectively (A) 1, 1.8 and 1.5 (B) 1.8, 1.5 and 1 (C) 1.8, 1 and 1.5 (D) 1.5, 1 and 1.8 (E) 1.5, 1.8 and 1 B
94. In how many ways can 2 students be selected from a group of 5 students in a debating competition? (A) 25 ways (B) 10 ways (C) 15 ways (D) 20 ways (E) 16 ways D
95. The arithmetic mean of the ages of 30 pupils in a class is 15.3 years. One boy leaves the class and one girl is enrolled, and the new average age of 30 pupils in the class becomes 15.2 years. How much older is the boy than the girl? D
- (A) 30 years (B) 6 years (C) 9 years (D) 3 years (E) 1 year
96. The letters of the word "MATRICULATION" are cut and put into a box. One letter is drawn at random from the box. Find the probability of drawing a vowel. C
- (A)  $\frac{7}{13}$  (B)  $\frac{5}{13}$  (C)  $\frac{6}{13}$  (D)  $\frac{8}{13}$  (E)  $\frac{4}{13}$
97. The mean of the numbers 3, 6, 4,  $x$  and 7 is 5. Find the standard deviation. A
- (A)  $\sqrt{2}$  (B)  $\sqrt{3}$  (C) 2 (D) 3 (E) 5
98. The weights of 30 new-born babies are given as follows: 6, 9, 5, 7, 6, 7, 5, 8, 9, 5, 7, 5, 8, 7, 8, 7, 5, 6, 5, 7, 6, 9, 9, 7, 8, 8, 7, 8, 9, 8. The mode is D
- (A) 6 (B) 5 (C) 8 (D) 7 (E) 10
99. Thirty boys and  $x$  girls sat for a test. The mean of the boys' scores and that of the girls were respectively 6 and 8. Find  $x$  if the total score was 468. C
- (A) 38 (B) 24 (C) 36 (D) 22 (E) 41
100. Two fair dice are rolled. What is the probability that both show up the same number of points? E
- (A)  $\frac{1}{36}$  (B)  $\frac{7}{36}$  (C)  $\frac{1}{2}$  (D)  $\frac{1}{3}$  (E)  $\frac{1}{6}$