WASSCE / WAEC MAY / JUNE 2017 GENERAL MATHEMATICS PAST QUESTION PAPER (MULTIPLE CHOICE)

Source WWW.LARNEDU.COM

Visit www.Larnedu.com for WASSE / WAEC past questions, WASSCE / WAEC Syllabus and more.
Good luck!

Note:

- This WASSCE General Mathematics past question paper is a little bit different from our standard format but we had to get a copy for our audience ASAP.
- Please ignore the markings on the sheet.
- All rights reserved.

Scanned by CamScanner

Answer **all** *the questions.*

Mathematical tables may be used in any question.

The use of non-programmable, silent and cordless calculator is allowed.

Each *question is followed by* **four** *options lettered* A *to* D. *Find the correct option for* **each** *question and shade* **in pencil**, *on your answer sheet, the answer space which bears the same letter as the option you have chosen. Give only* **one** *answer to* **each** *question. An example is given below.*

The ages, in years, of **four** boys are 10, 12, 14 and 18. What is the average age of the boys?

A. 12 years

B. $12\frac{1}{2}$ years

C. 13 years

D. $13\frac{1}{2}$ years

The correct answer is $13\frac{1}{2}$ years, *which is lettered* D, *and therefore answer space* D *would be shaded.*

[A] [B] [C] [D]

Think carefully before you shade the answer spaces; erase completely **any** *answer you wish to change.*

Do all rough work on this question paper.

Now, answer the following questions.

1. Express 0.0000407, correct to 2 significant figures.

A. 0.0
B. 0.00004
C. 0.000041
D. 0.0000407

2. If x varies inversely as y and y varies directly as z, what is the relationship between x and z?

A. $x \propto z$

B. $x \propto \frac{1}{z}$

C. $x \propto z^2$

D. $x \propto \frac{1}{z^2}$

3. Evaluate: $\frac{3\frac{1}{4} \times 1\frac{3}{5}}{11\frac{1}{3} - 5\frac{1}{3}}$.

A. $\frac{14}{15}$

B. $\frac{13}{15}$

C. $\frac{4}{5}$

D. $\frac{11}{15}$

4.

$\oplus$	0	1	2	3	4
0	0	1	2	3	4
1	1	2	3	4	0
2	2	3	4	0	1
3	3	4	0	1	2
4	4	0	1	2	3

Fig. 1

$\otimes$	0	1	2	3	4
0	0	0	0	0	0
1	0	1	2	3	4
2	0	2	4	1	3
3	0	3	1	4	2
4	0	4	3	2	1

Fig. 2

Fig. 1 and **Fig. 2** are the addition and multiplication tables respectively in modulo 5. Use these tables to solve the equation $(n \otimes 4) \oplus 3 = 0 \pmod 5$.

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

5. The ages of Tunde and Ola are in the ratio 1:2. If the ratio of Ola's age to Musa's age is 4:5, what is the ratio of Tunde's age to Musa's age?

A. 1 : 4
B. 1 : 5
C. 2 : 5
D. 5 : 2

6. If $M = \{x : 3 \leq x < 8\}$ and $N = \{x : 8 < x \leq 12\}$, which of the following is **true**?
I. $8 \in M \cap N$ II. $8 \in M \cup N$ III. $M \cap N = \varnothing$

A. III only
B. I and II only
C. II and III only
D. I, II and III

7. Given that $a = \log 7$ and $b = \log 2$, express $\log 35$ in terms of a and b.

A. $a + b + 1$
B. $ab - 1$
C. $a - b + 1$
D. $b - a + 1$

8. If $x = \frac{2}{3}$ and $y = -6$, evaluate $xy - \frac{y}{x}$.

A. 0
B. 5
C. 8
D. 9

9. Solve the equation: $\frac{1}{5x} + \frac{1}{x} = 3$.

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. $\frac{4}{5}$

10. A sum of ₦ 18,100.00 was shared among 5 boys and 4 girls with each boy taking ₦ 20.00 more than each girl. Find a boy's share.

A. ₦ 1,820.00
B. ₦ 2,000.00
C. ₦ 2,020.00
D. ₦ 2,040.00

11. One factor of $7x^2 + 33x - 10$ is

A. $7x + 5$.
B. $x - 2$.
C. $7x - 2$.
D. $x - 5$.

12. Solve: $-\frac{1}{4} < \frac{3}{4}(3x - 2) < \frac{1}{2}$.

A. $\frac{5}{9} < x < \frac{8}{9}$

B. $-\frac{8}{9} < x < \frac{7}{9}$

C. $-\frac{8}{9} < x < \frac{5}{9}$

D. $-\frac{7}{9} < x < \frac{8}{9}$

13. Simplify: $3x - (p - x) - (r - p)$.

A. $2x - r$
B. $2x + r$
C. $4x - r$
D. $2x - 2p - r$

Turn over

Scanned by CamScanner

14. An arc of a circle of radius 7.5 *cm* is 7.5 *cm* long. Find, correct to the nearest degree, the angle which the arc subtends at the centre of the circle.
[Take $\pi = \frac{22}{7}$].

A. 29°
B. 57°
C. 65°
D. 115°

15. Water flows out of a pipe at a rate of 40π cm^3 *per second* into an empty cylindrical container of base radius 4 *cm*. Find the height of water in the container after 4 *seconds*.

A. 10 *cm*
B. 14 *cm*
C. 16 *cm*
D. 20 *cm*

16. The dimensions of a water tank are 13 *cm*, 10 *cm* and 70 *cm*. If it is half-filled with water, calculate the volume of water in *litres*.

A. 4.55 *litres*
B. 7.50 *litres*
C. 8.10 *litres*
D. 9.55 *litres*

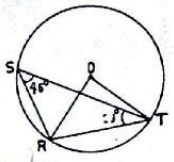
17. If the total surface area of a solid hemisphere is equal to its volume, find the radius.

A. 3.0 *cm*
B. 4.5 *cm*
C. 5.0 *cm*
D. 9.0 *cm*

18. Which of the following is **true** about parallelograms?

A. Opposite angles are supplementary
B. Opposite angles are complementary
C. Opposite angles are equal
D. Opposite angles are reflex angles

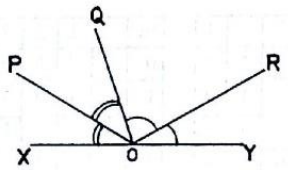
19.



The diagram shows a circle centre *O*.
If $\angle STR = 29°$ and $\angle RST = 46°$, calculate the value of $\angle STO$.

A. 12°
B. 15°
C. 29°
D. 34°

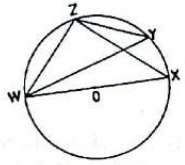
20.



In the diagram, *XY* is a straight line, $\angle POX = \angle POQ$ and $\angle ROY = \angle QOR$.
Find the value of $\angle POQ + \angle ROY$.

A. 60°
B. 90°
C. 100°
D. 120°

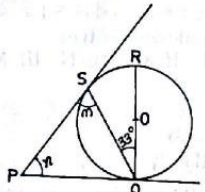
21.



The diagram shows a circle centre *O*.
If $\angle ZYW = 33°$, find $\angle ZWX$.

A. 33°
B. 57°
C. 90°
D. 100°

22.



In the diagram, *PQ* and *PS* are tangents to the circle centre *O*. If $\angle PSQ = m$, $\angle SPQ = n$ and $\angle SQR = 33°$, find the value of $(m + n)$.

A. 103°
B. 123°
C. 133°
D. 143°

23. Calculate the gradient (slope) of the line joining points (–1, 1) and (2, –2).

A. –1
B. $-\frac{1}{2}$
C. $\frac{1}{2}$
D. 1

24. If $P(2, 3)$ and $Q(2, 5)$ are points on a graph, calculate the length PQ.

A. 6 *units*
B. 5 *units*
C. 4 *units*
D. 2 *units*

25. A bearing of 320° expressed as a compass bearing is

A. *N* 50° *W*.
B. *N* 40° *W*.
C. *N* 50° *E*.
D. *N* 40° *E*.

26. Given that $\cos 30° = \sin 60° = \frac{\sqrt{3}}{2}$ and $\sin 30° = \cos 60° = \frac{1}{2}$, evaluate $\frac{\tan 60° - 1}{1 - \tan 30°}$.

A. $\sqrt{3} - 2$
B. $2 - \sqrt{3}$
C. $\sqrt{3}$
D. –2

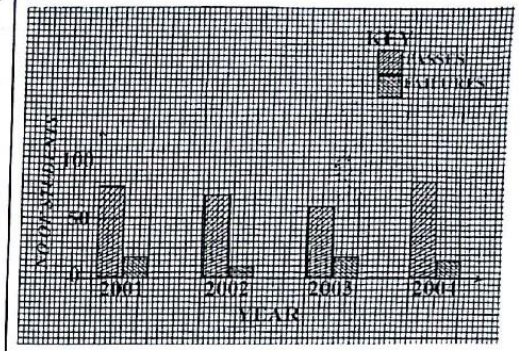
27. A stationary boat is observed from a height of 100 *m*. If the horizontal distance between the observer and the boat is 80 *m*, calculate, correct to **two** decimal places, the angle of depression of the boat from the point of observation.

A. 36. 87°
B. 39.70°
C. 51.34°
D. 53.13°

28. The average age of a group of 25 girls is 10 years. If one girl, aged 12 years and 4 months joins the group, find, correct to **one** decimal place, the new average age of the group.

A. 10.1 years
B. 9.3 years
C. 8.7 years
D. 8.3 years

29.



The bar chart shows the statistics of the number of passes and failures in an examination in a school from 2001 to 2004. What is the ratio of the total number of passes to the total number of failures?

A. 60 : 13
B. 10 : 3
C. 5 : 1
D. 40 : 13

Marks	0	1	2	3	4	5
Frequency	7	4	18	12	8	11

The table gives the distribution of marks obtained by a number of pupils in a class test. *Use this information to answer questions* **30** *and* **31**.

30. Find the median of the distribution.

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

31. Find the first quartile.

A. 1.0
B. 1.5
C. 2.0
D. 2.5

Turn over

Scanned by CamScanner

32. In a class of 45 students, 28 offer Chemistry and 25 offer Biology. If each student offers at least one of the two subjects, calculate the probability that a student selected at random from the class offers Chemistry **only**.

A. $\frac{2}{9}$

B. $\frac{4}{9}$

C. $\frac{5}{9}$

D. $\frac{7}{9}$

33. In what number base was the addition $1 + mn = 100$, where $n > 0$, done?

A. $n - 1$

B. n

C. $n + 1$

D. $n + 2$

34. Simplify: $\sqrt{2}\left(\sqrt{6}+2\sqrt{2}\right)-2\sqrt{3}$.

A. 4

B. $\sqrt{3}+4$

C. $4\sqrt{2}$

D. $4\sqrt{3}+4$

35. Three exterior angles of a polygon are 30°, 40° and 60°. If the remaining exterior angles are 46° each, name the polygon.

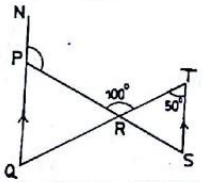
A. Decagon

B. Nonagon

C. Octagon

D. Hexagon

36.



In the diagram, $NQ//TS$, $\angle RTS = 50°$ and $\angle PRT = 100°$. Find the value of $\angle NPR$.

A. 110°

B. 130°

C. 140°

D. 150°

37. Simplify the expression $\frac{a^2b^4 - b^2a^4}{ab(a+b)}$.

A. $a^2 - b^2$

B. $b^2 - a^2$

C. $a^2b - ab^2$

D. $ab^2 - a^2b$

38. Find the 6^{th} term of the sequence:

$\frac{2}{3}, \frac{7}{15}, \frac{4}{15}, \ldots$.

A. $-\frac{1}{3}$

B. $-\frac{1}{5}$

C. $\frac{1}{15}$

D. $\frac{1}{5}$

39. The diagonal of a square is 60 *cm*. Calculate its perimeter.

A. $20\sqrt{2}$

B. $40\sqrt{2}$

C. $90\sqrt{2}$

D. $120\sqrt{2}$

40. The roots of a quadratic equation are $-\frac{1}{2}$ and $\frac{2}{3}$. Find the equation.

A. $6x^2 - x + 2 = 0$

B. $6x^2 - x - 2 = 0$

C. $6x^2 + x - 2 = 0$

D. $6x^2 + x + 2 = 0$

41. Make x the subject of the relation $d = \sqrt{\frac{6}{x} - \frac{y}{2}}$.

A. $x = \frac{6}{d^2} + \frac{12}{y}$

B. $x = \frac{12}{2d^2 - y}$

C. $x = \frac{12}{y} - 2d^2$

D. $x = \frac{12}{2d^2 + y}$

42. Consider the statements:

p : it is hot.

q : it is raining.

Which of the following symbols **correctly** represents the statement "It is raining if and only if it is cold"?

A. $p \Leftrightarrow \sim q$

B. $q \Leftrightarrow p$

C. $\sim p \Leftrightarrow \sim q$

D. $q \Leftrightarrow \sim p$

43. Given that $t = 2^{-x}$, find 2^{x+1} in terms of t.

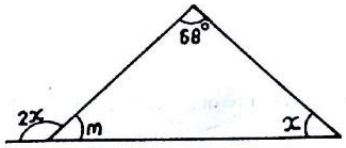
A. $\frac{2}{t}$

B. $\frac{t}{2}$

C. $\frac{1}{2t}$

D. $2t$

44.



Find the value of m in the diagram.

A. 72°

B. 68°

C. 44°

D. 34°

45. Two bottles are drawn **with replacement** from a crate containing 8 coke, 12 fanta and 4 sprite bottles. What is the probability that the first is coke and the second is **not** coke?

A. $\frac{1}{12}$

B. $\frac{1}{6}$

C. $\frac{2}{9}$

D. $\frac{3}{8}$

46. If the simple interest on a certain amount of money saved in a bank for 5 years at $2\frac{1}{2}$ % per annum is ₦500.00, calculate the total amount due after 6 years at the same rate.

A. ₦ 2,500.00

B. ₦ 2,600.00

C. ₦ 4,500.00

D. ₦ 4,600.00

47. Calculate the variance of 2, 3, 3, 4, 5, 5, 5, 7, 7 and 9.

A. 2.2

B. 3.4

C. 4.0

D. 4.2

48. A circular pond of radius 4 *m* has a path of width 2.5 *m* round it. Find, correct to **two** decimal places, the area of the path. [Take $\pi = \frac{22}{7}$]

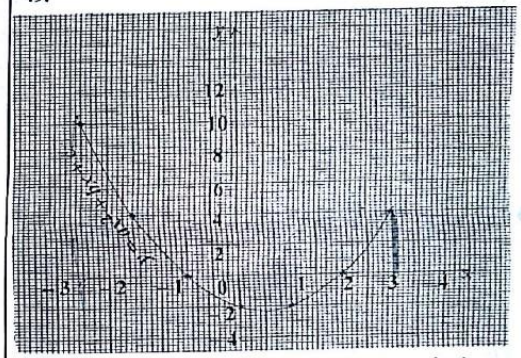
A. 7.83 m^2

B. 32.29 m^2

C. 50.29 m^2

D. 82.50 m^2

49.



The graph of $y = ax^2 + bx + c$ is shown in the diagram. Find the minimum value of y.

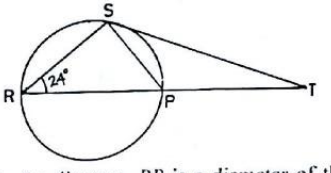
A. –2.0

B. –2.1

C. –2.3

D. –2.5

50.



In the diagram, RP is a diameter of the circle RSP, RP is produced to T and TS is a tangent to the circle at S. If $\angle PRS = 24°$, calculate the value of $\angle STR$.

A. 24°

B. 42°

C. 48°

D. 66°

Scanned by CamScanner

Scanned by CamScanner