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Hargeisa, Somaliland Republic

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Total Score

Name.....

School

Roll No

Republic of Somaliland

Somaliland National Examination Board

Form Four

MATHS PAPER ONE EXAMINATION

TIME 2 HOURS

Plus 10 minutes for reading through the paper

Total time 2 Hours and 10 Minutes

INSTRUCTIONS TO CANDIDATES

This paper consists of 9 printed pages.

Count them now. Inform the invigilator if there is any missing.

PART ONE: 30 MULTIPLE CHOICE [60 Marks]

PART TWO: 5 STRUCTURED QUESTIONS [40 Marks]

TOTAL MARKS [100 Marks]

- No extra paper is allowed
- Answer all questions

Use this page for rough work. It will NOT be marked.



PART one: 60 marks. Answer ALL the questions. Each question carries 2 marks.

Circle the correct answer. For each question there is only one correct answer

1. Which of the following is equivalent to $\frac{1}{3}$?
A. $\frac{15}{30}$ B) $\frac{9}{27}$ C. $\frac{11}{22}$ D) $\frac{10}{25}$
2. The value of $\sqrt{3+1}$ is
A) 4 B) 2 C) $\sqrt{2}$ D) 3
3. The probability of the having a wedding in a month beginning with M is :
A) $\frac{1}{7}$ B) $\frac{7}{12}$ C) $\frac{1}{6}$ D) $\frac{2}{7}$
4. \$ 480 is divided in the ratio 4:6:14. The largest amount is
A) \$ 300 B) \$ 240 C) \$ 250 D) \$ 280
5. Evaluate $[5 + 2(6 + 2) - 4]$
A) 5 B) 6 C) 7 D) 8
6. Given the data 1, 3, 2, 4, 8, 9, 2 the sum of the median and mode is :
A) 8 B) 3 C) 5 D) 27
7. The angles of a quadrilateral are X° , $2X^\circ$, $2X^\circ$, X° . What is the value of X ?
A) 360° B) 30° C) 90° D) 60°
8. The mean height of four people is 1.4 m. If a fifth person, 1.75 high, joins the group , what is the mean height of the five people ?
A) 1.57 m B) 1.47 m C) 1.63 m D) 1.30 m
9. Find the value of $\log_4 16$.
A) 2 B) 3 C) 4 D) 8



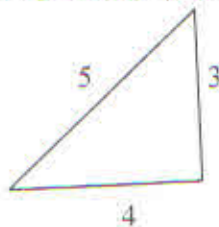
10. 20% of \$ 850 is:

- A) 20 B) 170 C) 850 D) 425

11. The value of $\frac{3}{5} + \frac{2}{5}$ is

- A) $\frac{9}{10}$ B) $\frac{10}{9}$ C) $\frac{6}{15}$ D) $\frac{2}{5}$

12. In this figure $\cos \phi$ is equal to:



- A) $\frac{4}{5}$ B) $\frac{3}{4}$ C) $\frac{3}{5}$ D) $\frac{3}{8}$

13. The value of ϕ in $\cos^2 \phi = + \sin^2 \phi$ can be :

- A) 0 B) 1 C) $\tan^2 \phi$ D) 45

14. Differentiation of $\sin \phi$ is

- A) $\cos \phi$ B) $\tan \phi$ C) $\sin \phi$ D) $\cot \phi$

15. If $f(x) = \cos 3x$, then $f'(x)$ is

- A) $\sin x$ B) $\sin 3x$ C) $-3 \sin 3x$ D) $-\sin x$

16. $4(x + 3) = 3(3x - 1)$. Find x ,

- A) -3 B) 12 C) 3 D) 1

17. What is the sum of the roots of the equation $2x^2 - 6x + 4 = 0$

- A) -4 B) +1 C) 2 D) 3

18. 45 minutes expressed as a fraction of one hour is :

- A) $\frac{1}{60}$ B) $\frac{1}{45}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$

19. 0.5×0.2 equals to

- A) 0.001 B) 0.01 C) 10 D) 0.1

20. If $5P^3 = 8 \times 5^{-2}$, then the value of P is :

- A) $\frac{2}{5}$ B) $\frac{4}{5}$ C) $\frac{8}{5}$ D) $\frac{5}{2}$

21. If $x = 2y - 1$ and $2x = 3y + 2$, then x equals to :

- A) -9 B) -4 C) 4 D) 7

22. $\frac{36}{x} = 12$ is true when the value of x is :

- A) 3 B) 12 C) 36 D) 18

23. If $m = 2n - t$, find the value of n when $m=11$ and $t = 3$.

- A) 4 B) 7 C) 8 D) 14

24. The number of subsets of $\{a, b, c\}$ is

- A) 3 B) 4 C) 9 D) 8

25. The determinant of

$$\begin{bmatrix} 7 & -7 \\ 2 & 0 \end{bmatrix} \text{ is}$$

- A) -14 B) 14 C) 0 D) 7

26. Given $f(x) = 7x + 12$. find $f(-3)$

- A) 33 B) 12 C) -9 D) 21

27. Find the value of $\log_2 16$

- A) 2 B) 3 C) 4 D) 16

28. If a six-sided die is rolled. Find the probability of getting a 2

- A) $\frac{6}{6}$ B) $\frac{1}{6}$ C) $\frac{2}{12}$ D) 0

29. Find $\int_0^2 3x^2 dx$

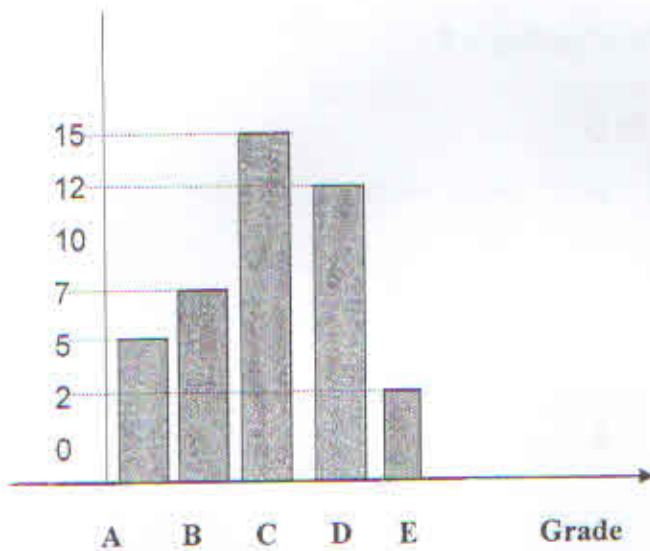
- A) 4 B) 8 C) 12 D) 6

30. The value of $(2\sqrt{2})^2$ is

- A) 2 B) 4 C) 8 D) $4\sqrt{2}$

Part two: Structured questions (40 marks)

1. The fig. shows candidates of exam test



is figure

- How many students got above c?
- How many students attended the test altogether?

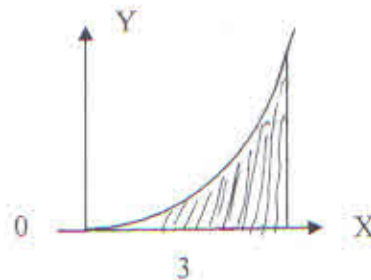
2. A tap is dripping water into a container at constant rate. The level (lcm) of water in the container is given by the equation $l = 3^t - 1$.

- Calculate the level of water at the start.
- Calculate the time taken for the level of water to reach 26 cm.

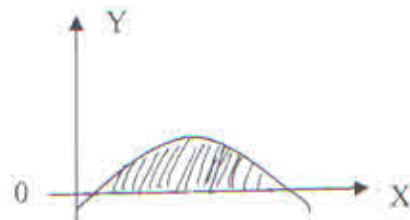
a) $y = (1 - x^2)$

b) $y = (x^3 - 2x)$

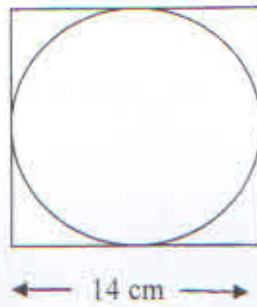
(i) $\int_0^3 6x^2 dx$



$$(ii) \int_0^{\sqrt{2}} 6x^2 dx$$



4. The diagram below shows a wire circle set inside a wire square of side 14 cm



- i) Calculate the perimeter of the square
- ii) Calculate the circumference of the circle
- iii) Calculate the total length of the wire used

5. If the probability that Ali wins when he plays one of 3 games is $\frac{1}{3}$ find the probability that,

- a) He wins all the games
- b) He wins two games and loses one



END