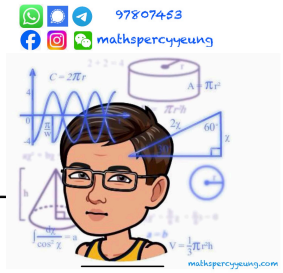
GHS 2022-2023 Final F4 paper two



Name : _____

Class : S. 4 _____

Date : 12 June 2023

Time : 10:45 – 11:30 (45 minutes)

Past Paper for
24-25 S4 FE Revision

INSTRUCTIONS

1. Read carefully the instructions on the Answer Sheet. After the announcement of the start of the examination, you should first write your name, class and class number on this cover page. You should also insert the information required in the spaces provided on the Answer Sheet. Darken the corresponding boxes accordingly if necessary. No extra time will be given for inserting the information or darkening the boxes after the "Time is up" announcement.

2. When told to open this paper, you should check that all questions are there. Look for the words "**END OF PAPER**" after the last question.

3. All questions carry equal marks.

4. **ANSWER ALL QUESTIONS.** You are advised to use an HB pencil to mark all the answers on the Answer Sheet, so that wrong marks can be completely erased with a clean rubber. You must mark the answers clearly; otherwise you will lose marks if the answers cannot be captured.

5. You should mark only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.

6. No marks will be deducted for wrong answers.

7. The diagrams in this paper are not necessarily drawn to scale.

1. The mean price of ten selected items is \$780. In a sale, all the selected items are sold at a discount of 30%, find the mean price of these selected items in the sale.

   A. \$234
   B. \$546
   C. \$780
   D. \$1014

2. The following cumulative frequency table shows the numbers of movies watched by a group of students in May.

Number of movies less than	3.5	6.5	9.5	12.5	15.5
Cumulative frequency	0	3	9	14	18

   If a student is randomly selected from the group, find the probability that the selected student has watched 7 – 12 movies

   A. $\frac{1}{6}$.
   B. $\frac{1}{2}$.
   C. $\frac{11}{18}$.
   D. $\frac{7}{9}$.

3. If $x = 12.3$ (correct to 3 significant figures), find the range of values of x.

   A. $12.2 \le x < 12.4$
   B. $12.2 < x \le 12.4$
   C. $12.25 \le x < 12.35$
   D. $12.25 < x \le 12.35$

   Error and Approximation (Not included in 24-25 S4 FE)

4. If $a(a-b) = 3(a+b)$, then $b =$

   A. $\frac{a^2-3a}{a+3}$.
   B. $\frac{a^2+3a}{a+3}$.
   C. $\frac{a^2-3a}{a-3}$.
   D. $\frac{a^2+3a}{a-3}$.

5. If the straight lines $hx-3y+2=0$ and $4x+6y-5=0$ are parallel, then $h =$

   A. -4.
   B. -2.
   C. 2.
   D. 4.

6. Let a be a constant. Solve the equation $(x-2a)(x+3a)=(x+3a)(4a-x)$.

A. $x=a$
B. $x=3a$
C. $x=-a$ or $x=3a$
D. $x=-3a$ or $x=3a$

7. Find the range of values of h such that the quadratic equation $x^2+4x=3-h$ has two distinct real roots.

A. $h>-7$
B. $h\geq -7$
C. $h<7$
D. $h\leq 7$

8. If z varies directly as the square root of x and inversely as the square of y, which of the following must be a constant?

A. $\frac{y^4z^3}{x}$.
B. $\frac{y^2z^4}{x}$.
C. $\frac{y^4z}{x^2}$.
D. $\frac{yz^2}{x^4}$.

9. Let $p(x)=x^3+kx^2+2kx+8$, where k is a constant. If $p(x)$ is divisible by $x+k$, then $k=$

A. -2.
B. 4.
C. 2.
D. -2 or 2.

10. If the simultaneous equations $\begin{cases} y=-x^2+10x-k \\ y=2x+k \end{cases}$ have only one solution, then $k=$

A. -25.
B. -8.
C. 8.
D. 25.

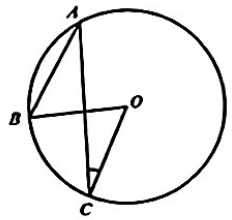
11. Which of the following is the greatest?

A. $123^{-\pi}$.
B. $122^{-\pi}$.
C. $-121^{-\pi}$.
D. $\left(-\frac{1}{124}\right)^{\pi}$.

12. If $25^{x-1}+5^{2x+1}=630$, then $x=$

A. $\frac{3}{2}$.
B. 1.
C. $\frac{2}{3}$.
D. $\frac{1}{2}$.

13. In the figure, O is the centre of circle ABC where $AB=BC$. If $\angle BAC=40°$, then $\angle ACO=$



A. 10°.
B. 20°.
C. 40°.
D. 50°.

Circle Properties (Not included in 24-25 S4 FE)

14. If $\sqrt{16-5x}=2-x$, then $x=$

A. -4.
B. 3.
C. -3 or 4.
D. -4 or 3.

15. If p varies directly as q and q^2 varies inversely as r, which of the following is true?

A. p varies inversely as the square of r.
B. p varies inversely as the square root of r.
C. r varies directly as the square of p.
D. r varies directly as the square root of p.

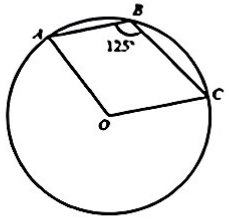
16. The L.C.M. of $9x^3-6x+1$, $9x^2-1$ and $27x^3-1$ is

A. $3x-1$.
B. $(3x+1)(3x-1)^2(9x^2+3x+1)$.
C. $(3x+1)(3x-1)^2(9x^2-3x+1)$.
D. $(3x+1)(3x-1)^4(9x^2+3x+1)$.

17. If the volume of a right circular cylinder of base radius $3a$ cm and height $5b$ cm is 675π cm^3, then the volume of a right pyramid of square base with length $5a$ cm and height $3b$ cm is

A. 225 cm^3.
B. 375 cm^3.
C. 675 cm^3.
D. 1125 cm^3.

18. In the figure, O is the centre of the circle ABC, $AB \parallel OC$ and $\angle ABC = 125°$. Find $\overset{\frown}{AB} : \overset{\frown}{BC}$.



Circle Properties (Not included in 24-25 S4 FE)

A. 1 : 2
B. 2 : 3
C. 4 : 7
D. 11 : 25

19. Consider the following data:

m n 23 26 27 28 28

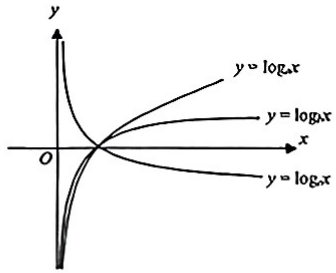
If the mean and the median of the above data are both 28, which of the following are true?

I. $m \geq 28$
II. $m + n = 64$
III. $n \leq 36$

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

20. The figure below shows the graphs of three logarithmic functions, where a, b and c are positive constants. Which of the following are true?

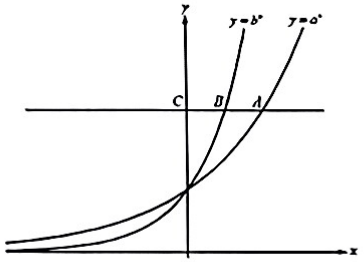
I. The three curves all pass through the point $(1,0)$.
II. $b > a > c$
III. If $\log_a x + \log_c x = 0$ for $x > 1$, then $bc = 1$.



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

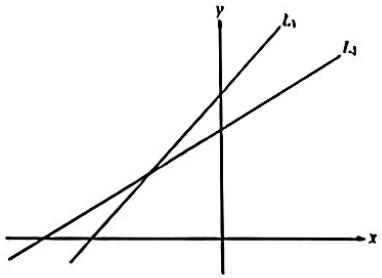
21. The figure shows the graph of $y = a^x$ and the graph of $y = b^x$ on the same rectangular coordinate system, where a and b are positive constants. If a horizontal line cuts the graph of $y = a^x$, the graph of $y = b^x$ and the y-axis at the points A, B and C respectively, which of the following are true?

I. $a > 1$
II. $a < b$
III. $\dfrac{AB}{BC} = \log_a \dfrac{b}{a}$



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

22. In the figure, the equations of the straight lines L_1 and L_2 are $ax+by+1=0$ and $cx+dy+1=0$ respectively. Which of the following must be true?



I. $a>c$
II. $b>d$
III. $ad<bc$

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

23. Let m and n be real constants such that $mn>0$. Which of the following statements about the graph of $y=(1-mx)^2+n$ must be true?

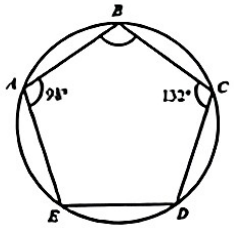
I. The graph opens upward.
II. The y intercept of the graph is $1+n$.
III. The graph does not intersect with the x-axis.

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

24. If α and β are the roots of the equation $5x^2-kx-1=0$, where k is a constant, then $5\alpha^2+k\beta=$

A. 1.
B. $\frac{k^2}{5}$.
C. $\frac{5-k^2}{5}$.
D. $\frac{k^2+5}{5}$.

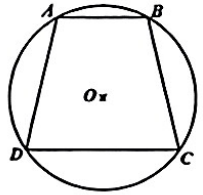
25. In the figure, $ABCDE$ is a circle where $\angle BAE=98°$ and $\angle BCD=132°$. If $AB=AE$ and $\overset{\frown}{BC}=\overset{\frown}{CD}$, find $\angle ABC$.



A. 104°
B. 106°
C. 115°
D. 124°

Circle Properties (Not included in 24-25 S4 FE)

26. In the figure, O is the centre of circle $ABCD$. $AB=14$ cm, $CD=40$ cm and $AB\ //\ DC$. If the area of the trapezium is 1053 square unit, the area of the circle $ABCD$ is



A. 625π square unit.
B. 676π square unit.
C. 729π square unit.
D. 900π square unit.

Circle Properties (Not included in 24-25 S4 FE)

END OF PAPER