

[E.N / 15]

ARAB REPUBLIC OF EGYPT [ث.ع / ا.ح] ٥٥ / ج

Ministry of Education

General Secondary Education Certificate Examination, 2015

[ New System – Second Session ]

Pure Mathematics [Differentiation &amp; Integration] Time: 2 hours

الرياضيات البحتة [ التفاضل والتكامل ] باللغة الإنجليزية

تنبيه مهم : ١ - يسلم الطالب ورقة امتحانية باللغة العربية مع الورقة المترجمة .  
٢ - الإجابات المتكررة عن أسئلة الاختيار من متعدد لن تقدر ويتم تقدير الإجابة الأولى فقط .

**Remark: Calculators are permitted.****First: Answer the following question:****Question 1: Choose the correct answer from those given: ( 6 marks )**(1) If  $f(x) = |x - 3| + 2$ , then the value of the derivative  $f'(x)$  at  $x = 3$  is .....

- a) -1                      b) 0                      c) 1                      d) not existed

(2) If  $f(x) = \begin{cases} \frac{\sqrt{x+2} - 2}{x-2} & , \text{ where } x \neq 2 \\ k & , \text{ where } x = 2 \end{cases}$

is continuous at  $x = 2$ , then  $k = \dots\dots\dots$ 

- a) 4                      b)  $\frac{1}{4}$                       c) 0                      d)  $-\frac{1}{4}$

(3) Which of the following curves intersects orthogonally with the curve whose equation is  $y = \frac{1}{x} + a$ ? ( where  $a \in \mathbb{R}$  )

- a)  $y = -x$               b)  $y = -x^2$               c)  $y = -\frac{1}{3}x^3$               d)  $y = \frac{1}{3}x^3$

(4) The nearest point on the curve  $x^2 + 2y = 0$  to the point  $(0, -\frac{1}{2})$ occurs when  $y = \dots\dots\dots$ 

- a) -1                      b)  $-\frac{1}{2}$                       c) 0                      d)  $\frac{1}{2}$

(5)  $\int \frac{x^3}{\sin^2 x + \cos^2 x} dx = \dots\dots\dots$ 

- a)  $\frac{1}{4}x^4 + c$                       b)  $\frac{1}{4}x^4 + c$   
c)  $\frac{1}{4}x^3 + c$                       d)  $\frac{1}{4}x^4 - x + c$

[ بقية الأسئلة في الصفحة الثانية ]

