

**University of Bahrain
College of Science
Department of Mathematics
First Semester 2007/2008**

**Math A111
Final Exam**

Date: 28/01/2008

Time: 11:30 – 13:30 α

Max. Mark: 60

Student Name:	
Student ID :	Section:
Your Instructor's Name:	

Write all your answers on Page 2.

Please check that you have **9 pages**

Max. Marks :	60
Marks Obtained:	

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Answer Sheet α

Student Name:.....	Student ID:.....	Section:...
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Each of the following questions counts 2 Marks

	a	b	c	d
Question 1				
Question 2				
Question 3				
Question 4				
Question 5				
Question 6				
Question 7				
Question 8				
Question 9				
Question 10				
Question 11				
Question 12				
Question 13				
Question 14				
Question 15				
Question 16				
Question 17				
Question 18				
Question 19				
Question 20				
Question 21				
Question 22				
Question 23				
Question 24				
Question 25				
Question 26				
Question 27				
Question 28				
Question 29				
Question 30				

6. The simplification of $\frac{3}{x+2} + \frac{x}{5} =$

a) $\frac{x^2 + 17}{5(x+2)}$

b) $\frac{15 + x^2}{5(x+2)}$

c) $\frac{x^2 + 2x + 15}{5(x+2)}$

d) $\frac{3 + x}{5(x+2)}$

7. The Solutions of the equation $x^2 - 7x + 5 = 0$ are

a) $x = \frac{-7 \pm \sqrt{29}}{2}$

b) $x = \frac{7 \pm \sqrt{29}}{2}$

c) $x = \frac{-7 \pm \sqrt{69}}{2}$

d) $x = \frac{7 \pm \sqrt{69}}{2}$

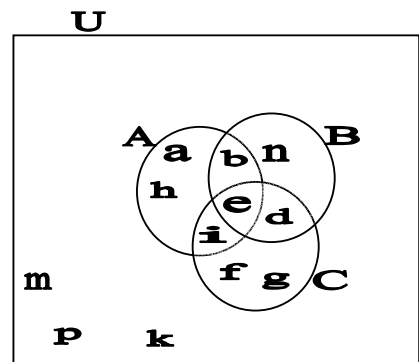
8. From the Venn diagram, $(A \cup B) \cap C =$

a) {a, h, b, e, n, d}

b) {b, e, i, d}

c) {e, i, d}

d) {b, h, i, n}



9. If $A = \{2, 4, 7\}$, $B = \{3, 4, 5, 8, 9\}$ and $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, then $(A \cup B)' =$

a) {4}

b) {2, 3, 4, 7}

c) ϕ

d) {1, 6, 10}

10. If $f(x) = 3x - 5$ and $g(x) = x^2 + 4$ then $g(f(3)) =$

a) 34

b) 20

c) 12

d) 25

11. If $f(x) = 7x + 4$, then $f^{-1}(x)$ is

a) $-7x - 4$

b) $\frac{1}{7}x + \frac{1}{4}$

c) $-\frac{1}{7}x - 4$

d) $\frac{x - 4}{7}$

12. The function $f(x) = x^3$ is

a) an odd function only

b) an even function only

c) both an even and odd functions

d) neither an even nor an odd function

13. If $f(x) = x + 8$ and $g(x) = x^2 - 5x$ then $f(2) + g(2) =$

a) -6

b) 10

c) 4

d) 16

14. If $\log_5(x + 7) = 2$ then $x =$

a) 18

b) 3

c) 4

d) 5

15. Solve for x : $6^x = (36)^{x-3}$

a) $x = 2$

b) $x = 6$

c) $x = 3$

d) $x = -3$

16. The simplification of $5 \log 2 + \log 12 - \log 24$ using the rules of logarithm gives

a) $\log 33$

b) $\log 5$

c) $\log \frac{1}{16}$

d) $\log 16$

22. If $f(x) = \sqrt[3]{x^2}$, then $f'(x) =$

a) $\frac{3}{2}x^{-1/3}$

b) $\frac{3}{2}x^{1/3}$

c) $\frac{2}{3}x^{1/3}$

d) $\frac{2}{3}x^{-1/3}$

23. The gradient (slope) of the tangent line to the curve $y = 3x^2 - 8x + 3$ when $x = 2$ is

a) 4

b) 12

c) 2

d) -1

24. The function $y = -2x^2 - 4x + 7$ has a maximum at the point

a) $(-1, -9)$

b) $(-1, 9)$

c) $(1, -9)$

d) $(1, 9)$

25. The cost function of a company is given by $C(x) = x^2 - 8x + 250$, where x is the number of items produced. The minimum cost for C is when $x =$

a) 10

b) 2

c) 250

d) 4

26. $\int (x^3 + e^{7x} - 8) dx =$

a) $3x^2 + 7e^{6x}$

b) $\frac{x^4}{4} + \frac{e^{7x}}{7} - 8x + C$

c) $x^4 + e^{7x} - 8x + C$

d) $3x^4 + e^{8x} - 8x + C$

Draft Page