

*University of Bahrain
College of Science
Department of Mathematics
Second Semester 2008/2009*

Math A111 – Mid Term Exam

Date: 19/05/2009

Time: 3:00 – 4:15

Max. Mark: 40

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

Write all your answers on Page 2.

*Please check that you have **6** pages*

Max. Marks :	40
Marks Obtained:	

☺ ☺ ☺ ☺ **GOOD LUCK** ☺ ☺ ☺ ☺

Answer-ω- Sheet

Student Name:.....Student ID:.....Section:...

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				

Choose the correct answer and write it on the answer sheet on page 2

1. If $A = \{2, 5, 7, 9\}$, $B = \{1, 4, 5, 7, 8\}$ and $C = \{1, 2, 7\}$, then $(A \cup C) \cap B =$

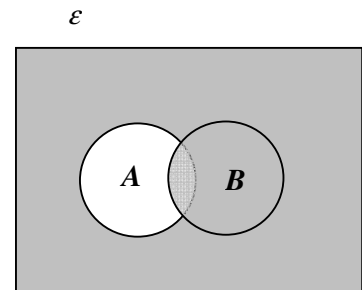
- a) $\{1, 4, 5, 7, 8\}$ b) $\{1, 5, 7\}$
 c) $\{1, 2, 7\}$ d) $\{5, 7\}$

2. $x^{3/5} =$

- a) $\sqrt[5]{x^3}$ b) $\sqrt[3]{x^5}$
 c) $(x^5)^3$ d) $(x^5)^{\frac{1}{3}}$

3. The shaded region in Venn diagram represents

- a) $A' \cup B$ b) A'
 c) B' d) $A \cup B'$



4. If $h = vt - 5t^2$, and $h = 120$, $t = 3$, then $v =$

- a) 25 b) 55
 c) 43 d) 75

5. The simplification of $(-2x^{-5}y^3)^4 =$

- a) $\frac{-16y^{12}}{x^{20}}$ b) $\frac{-8y^7}{x}$
 c) $\frac{-16y^7}{x}$ d) $\frac{16y^{12}}{x^{20}}$

6. The number 83 in binary system is equal

- a) 10010011 b) 1010011
c) 1010101 d) 101011

7. If $A = \{x \mid x = 3n - 2, 1 \leq n < 4, n \text{ integer}\}$ then

- a) $A = \{4, 7\}$ b) $A = \{1, 4, 7, 10\}$
c) $A = \{1, 4, 7\}$ d) $A = \{1, 2, 3, 4\}$

8. Solve for x : $\frac{2x-3}{2} = \frac{3}{4} + \frac{x-4}{3}$

- a) $x = -\frac{3}{2}$ b) $x = \frac{11}{8}$
c) $x = \frac{8}{11}$ d) $x = \frac{3}{2}$

9. The expansion of $(2t^2 + 1)(t^2 - 5) =$

- a) $2t^4 - 10t^2 - 5$ b) $2t^4 + 9t^2 - 5$
c) $2t^4 - 11t^2 - 5$ d) $2t^4 - 9t^2 - 5$

10. The factorization of $8x^2y - 18y^3 =$

- a) $2y(2x - 3y)(2x + 3y)$ b) $2y(2x + 3y)(2x + 3y)$
c) $(4xy - 2y)(2x + 9y^2)$ d) $(4xy + 2y)(2x - 9y^2)$

11. If $\mathbb{R} = \{\text{all real numbers}\}$ and $\mathbb{Q} = \{\text{all rational number}\}$. Then $\mathbb{R} \cap \mathbb{Q} =$

- a) \mathbb{R} (real numbers) b) \mathbb{Z} (integer numbers)
c) ϕ d) \mathbb{Q} (rational numbers)

12. The factorization of $6x^2 + 7x - 3 =$

- a) $(3x+1)(2x-3)$ b) $(6x-3)(x+1)$
c) $(3x-1)(2x+3)$ d) $(6x+3)(x-1)$

13. The simplification of $\frac{4m+8}{5m-20} \div \frac{m^2-3m-10}{m^2-4m}$ is

- a) $\frac{4m}{m-5}$ b) $\frac{4}{m-5}$
c) $\frac{m}{5(m+5)}$ d) $\frac{4m}{5(m-5)}$

14. The binary number 110101 in decimal system is equal

- a) 53 b) 50
c) 52 d) 54

15. The solutions of the equation $6x^2 + 5x - 4 = 0$ are

- a) $x = \frac{1}{2}, x = \frac{4}{3}$ b) $x = \frac{1}{2}, x = -\frac{4}{3}$
c) $x = -\frac{1}{2}, x = \frac{4}{3}$ d) $x = -\frac{1}{2}, x = -\frac{4}{3}$

16. If $3x^2 + 5x - 4 = 0$ then

a) $x = \frac{-5 \pm \sqrt{73}}{6}$

b) $x = \frac{-5 \pm \sqrt{73}}{3}$

c) $x = \frac{-5 \pm \sqrt{73}}{2}$

d) $x = \frac{5 \pm \sqrt{73}}{6}$

17. Transpose the formula $-mx + r = nx - s$ to make x the subject :

a) $x = \frac{r+s}{mn}$

b) $x = \frac{r-s}{mn}$

c) $x = \frac{r+s}{m+n}$

d) $x = \frac{r-s}{m+n}$

18. The solution of $\frac{2}{3}(18x+6) - (5x-12) = 14$ is

a) $x = \frac{7}{2}$

b) $x = -\frac{7}{2}$

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

d) $x = \frac{2}{7}$

19. The simplification of $\frac{3n}{n+3} - \frac{2n}{n+2} =$

a) $\frac{12n-3n^2}{(n+3)(n+2)}$

b) $\frac{-n^2}{(n+3)(n+2)}$

c) $\frac{5n^2+5}{(n+3)(n+2)}$

d) $\frac{n^2}{(n+3)(n+2)}$

20. The **y-value** in the solution of the simultaneous equations $x - 3y = 18$ is
 $2x + y = 1$

a) $y = 3$

b) $y = -5$

c) $y = 5$

d) $y = -7$