University of Bahrain
College of Science
Department of Mathematics
First Semester 2008/2009

Math A111 – Mid Term Exam

Date: 24/11/2008 **Time:11:30 – 12:45 α**

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:	

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Answer Sheet α

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. The prime number in the following list $15,12,19,121$ is

a) 12 b) 15

c) 19 d) 121

2. The simplification of the expression $\left(16x^4y^{-2}z^6\right)^{\frac{1}{2}}$ =

a) $4x^2yz^3$ b) $\frac{4x^2y^3}{z}$

c) $\frac{4x^2z^3}{y}$ d) $8x^8y^4z^{12}$

3. The simplification of $\left(\frac{2k^{-3}w^4p^3}{k^{-4}p}\right)^3$ =

a) $6k^3w^{12}p^9$ b) $8k^3w^{12}p^6$

c) $\frac{8w^{12}p^6}{k^3}$ d) $\frac{2w^{12}p^3}{k^3}$

4. The expansion of $(2m+3)(4m-5)$ is

a) $8m^2+2m-15$ b) $8m^2-2m-15$

c) $8m^2+22m-15$ d) $8m^2-22m-15$

5. The factorization of $x^2-5x-24$ is

a) $(x+8)(x-3)$ b) $(x+8)(x+3)$

c) $(x-8)(x-3)$ d) $(x-8)(x+3)$

6. The factorization of $6y^2 + 5y - 4 =$

a) $(2y+1)(3y+4)$ b) $(2y-1)(3y+4)$

c) $(2y+1)(3y-4)$ d) $(2y-1)(3y-4)$

7. The solutions of $3x^2 + 7x - 20 = 0$ are

a) $x = -4,\ x = \frac{5}{3}$ b) $x = -5,\ x = \frac{4}{3}$

c) $x = 4,\ x = -\frac{5}{3}$ d) $x = 5\ x = -\frac{4}{3}$

8. The solution of $\frac{3(x-1)}{4} = \frac{x-2}{5}$ is

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

c) $x = \frac{7}{11}$ d) $x = \frac{11}{7}$

9. The solutions of the simultaneous equations $\begin{matrix} 2x - 3y = 7 \\ -3x + y = -7 \end{matrix}$ are

a) $x = -1,\ y = 2$ b) $x = 2,\ y = -1$

c) $x = -2,\ y = 1$ d) $x = 1, y = -2$

10. The coefficient of mt in the expansion of $(m+3t)(5t-3m)$ is

a) -9 b) -5

c) -3 d) -4

11. The simplification of $\dfrac{m^2-2m-15}{m^2+2m-35} \div \dfrac{m^2-6m+8}{m^2+3m-28}$ is

a) $\dfrac{m-3}{m+2}$

b) $\dfrac{m+3}{m-2}$

c) $\dfrac{m+2}{m-3}$

d) $\dfrac{m-2}{m+3}$

12. The simplification of $\dfrac{x}{x-4} - \dfrac{x}{x+4} =$

a) $\dfrac{-8x}{x^2-16}$

b) $\dfrac{-2x^2-8x}{x^2-16}$

c) $\dfrac{2x^2+8x}{x^2-16}$

d) $\dfrac{8x}{x^2-16}$

13. The simplification of $\dfrac{x^2+7x+12}{x^2-6x-27} \times \dfrac{x^2-81}{x^2+2x-8} =$

a) $\dfrac{x-2}{x+9}$

b) $\dfrac{x+2}{x-9}$

c) $\dfrac{x+9}{x-2}$

d) $\dfrac{x-9}{x+2}$

14. Transpose the formula $a(5t+2) = 7t+3$ to make t the subject :

a) $t = \dfrac{3-2a}{5a-7}$

b) $t = \dfrac{5a-7}{3-2a}$

c) $t = \dfrac{2-3a}{a-5}$

d) $t = \dfrac{2a-3}{5a-7}$

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

a) $x = \frac{-5 \pm \sqrt{17}}{2}$

b) $x = \frac{5 \pm \sqrt{17}}{2}$

c) $x = \frac{5 \pm \sqrt{33}}{2}$

d) $x = \frac{-5 \pm \sqrt{33}}{2}$

16. If $\frac{f}{t} = m(h - w)$, and $f = 20, t = 5, m = 2$ and $w = 7$. Then the value of $h =$

a) 9

b) 11

c) 8

d) 7

17. The number 39 in binary system is equal

a) 100101

b) 100111

c) 110101

d) 10110

18. The binary number 1011011 in decimal system is equal

a) 87

b) 59

c) 91

d) 19

19. The subtraction of the following two binary numbers $1110110 - 1101 =$

a) 110101

b) 101001

c) 1101001

d) 110110

20. The multiplication of the following two binary numbers $101101 \times 1001 =$

a) 11101011

b) 11010101

c) 110001101

d) 110010101