*University of Bahrain*
*College of Science*
*Department of Mathematics*
*First Semester 2009/2010*

# *Math A111 - Mid Term Exam*

**Date: 19/11/2009** **Time: 2:00 – 3:15**

**Max. Mark: 40**

Coordinators: Prof. Shoukry Hassan & Dr. Thuraya Juma

| | |
|---|---|
| **Student Name:** | |
| **Student ID :** | **Section:** |
| **Your Instructor's Name:** | |

***Write all your answers on Page 2.***

***Please check that you have 8 pages***

| | |
|---|---|
| **Max. Marks :** | **40** |
| **Marks Obtained:** | |

☺ ☺ ☺ ☺ ***G O O D L U C K*** ☺ ☺ ☺ ☺

Answer- 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 $\varepsilon=\{a,b,d,e,f,g,h,i,w\}$, $A=\{a,f,h,w\}$, $B=\{b,f,g,i,w\}$ and $C=\{b,e,h\}$, then $A\cup(B\cap\overline{C})=$

a) $\{a,f,g,w\}$ b) $\{a,f,h,g,w,i\}$

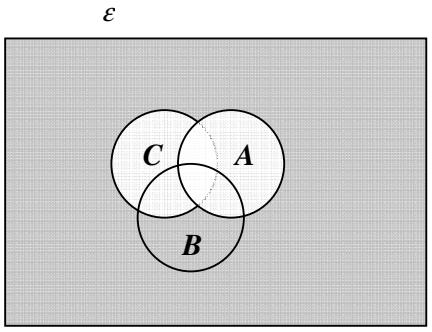
c) $\{f,g,i,w\}$ d) $\{a,f,h,w\}$

**2.** If $A=\{x\mid x=n^2,\ -2\le n<2,\ n \text{ integer}\}$ then

a) $A=\{-2,-1,0,1,2\}$ b) $A=\{0,1,4\}$

c) $A=\{1,4\}$ d) $A=\{-1,0,4\}$

**3.** The shaded region in Venn diagram represents




a) $\overline{B}$ b) $\overline{B\cup C}$

c) $\overline{A\cup B}$ d) $\overline{A\cup C}$

**4.** $\sqrt[7]{9^4}=$

a) $\left(9^4\right)^{\frac{1}{7}}$ b) $\sqrt[4]{9^7}$

c) $\left(9^4\right)^7$ d) $\left(9^7\right)^{\frac{1}{4}}$

**5.** The simplification of $\left(\dfrac{2m^{-3}n^4}{p^{-2}}\right)^3=$

a) $\dfrac{6n^7}{p}$ b) $\dfrac{8p^6n^{12}}{m^9}$

c) $\dfrac{n^{12}p^6}{8m^9}$ d) $\dfrac{8n^7}{p}$

**6.** If $S=\frac{n}{2}(a+b)$ , and $n=8, a=2$, and $S=48$, then $b=$

a) 6 b) 40

c) 2 d) 10

**7.** The simplification of $(3x^2y-2x+1)-(4x^2y+6x-3)$ is

a) $x^2y-8x+4$ b) $-x^2y-8x-4$

c) $-x^2y+8x+4$ d) $-x^2y-8x+4$

**8.** The expansion of $(3x^2-5y^2)(3x^2+4y^2)=$

a) $9x^4-3x^2y^2+20y^4$ b) $9x^4+3x^2y^2-20y^4$

c) $9x^4-3x^2y^2-20y^4$ d) $9x^4+3x^2y^2+20y^4$

**9.** The number 42 in binary system is equal

a) 101001 b) 100110

c) 101011 d) 101010

**10.** Solve for *x*: $\frac{x-1}{3}+\frac{x+2}{6}=2$

a) $x=4$ b) $x=\frac{1}{4}$

c) $x=2$ d) $x=\frac{1}{2}$

**11.** The factorization of $x^3 - 25xb^2 =$

a) $x(x-5b)(x+5b)$ b) $x(x+5b)(x+5b)$

c) $(x-5b)(x+5b)$ d) $x(x-5b)(x-5b)$

**12.** If $\mathbb{Q}$ = {all rational numbers} and $\mathbb{Z}$ = {all integer numbers}. Then $\mathbb{Q} \cap \mathbb{Z} =$

a) $\mathbb{R}$ (real numbers) b) $\phi$

c) $\mathbb{Z}$ (integer numbers) d) $\mathbb{Q}$ (rational numbers)

**13.** The factorization of $x^2 + 7x - 8 =$

a) $(x+8)(x+1)$ b) $(x+8)(x-1)$

c) $(x-8)(x+1)$ d) $(x-8)(x-1)$

**14.** The binary number 111001 in decimal system is equal

a) 32 b) 57

c) 53 d) 56

**15.** The simplification of $\dfrac{2m+4}{m^2-7m-18} \div \dfrac{4m-16}{m^2-81}$ is

a) $\dfrac{2(m-4)}{m+9}$ b) $\dfrac{m-9}{2(m-4)}$

c) $\dfrac{m+9}{m-4}$ d) $\dfrac{m+9}{2(m-4)}$

**16.** The solution of $2(x+6)-(3x-5)=14$ is

a) $x=-3$ b) $x=3$

c) $x=13$ d) $x=-13$

**17.** The solutions of the equation $2x^2+9x-5=0$ are

a) $x=\frac{1}{2}, x=5$ b) $x=-\frac{1}{2}, x=5$

c) $x=\frac{1}{2}, x=-5$ d) $x=-\frac{1}{2}, x=-5$

**18.** The simplification of $\frac{w}{w-3}-\frac{w}{w+2}=$

a) $\frac{-w}{(w-3)(w+2)}$ b) $\frac{2w^2+5w}{(w-3)(w+2)}$

c) $\frac{5w}{(w-3)(w+2)}$ d) $\frac{-5w}{(w-3)(w+2)}$

**19.** If $x^2-7x-3=0$ then

a) $x=\frac{7\pm\sqrt{61}}{2}$ b) $x=\frac{-7\pm\sqrt{61}}{2}$

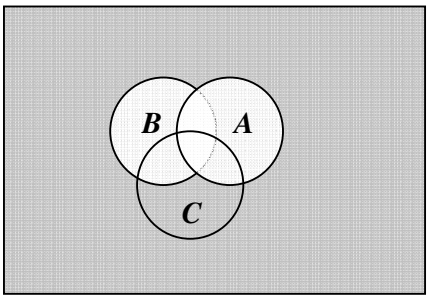
c) $x=\frac{-7\pm\sqrt{37}}{2}$ d) $x=\frac{7\pm\sqrt{37}}{2}$

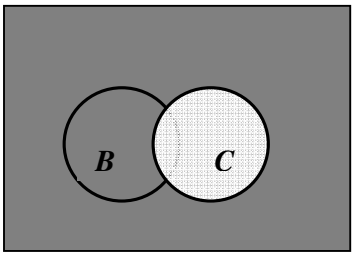
**20.** Transpose the formula $2p+4=a^2-ap$ to make $p$ the subject :

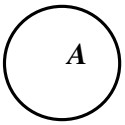
a) $p=\frac{1}{a-2}$ b) $p=a+2$

c) $p=\frac{1}{a+2}$ d) $p=a-2$

# Draft Paper



# Draft Paper