كلية الحاسبات والمعلومات

المستوي الاول برنامج المعلوماتية الطبية

الفصل الدراسي الثاني

2021-2020

تاريخ الامتحان: 2021/6/12

نموذج اجابة ورقة كاملة

المادة: تأهيلي الرياضيات

أستاذ المادة : د / أحمد مصطفي عبدالباقي مجاهد

استاذ مساعد بقسم الرياضيات بكلية العلوم ببنها

صورة من الاسئلة

Benha University
2st Term (Jun 2021) Final Exam
Medical Informatics Program
Level: 1st level
Subject: Qualifying Mathematics

Faculty of Computers & AI
Date: 12 /6 /2021
Time: 3 hrs.
Total Marks: 50 Marks
Examiner(s): Dr. Ahmed Megahed

Choose the correct answer [18 questions in 3 pages]:

Question No. 1 [3 Marks]

$[5(\cos 10^{\circ} + \mathrm{i} \sin 10^{\circ})]^2$=...

$(a)\ 25(\cos 100^{\circ} + \mathrm{i} \sin 100^{\circ})$ $(b) 10(\cos 100^{\circ} + \mathrm{i} \sin 100^{\circ})$
$(c) 25(\cos\ 20^{\circ} + i \sin 20^{\circ})$ $(d) 10(\cos 20^{\circ} + \mathrm{i} \sin 20^{\circ})$

Question No. 2 [3 Marks]

If $|z| = 6\ then\ |-\bar{z}| = \cdots$

(a) 6 b) -6 (c) $\frac{1}{6}$ (d)$\frac{-1}{6}$

Question No. 3 [2 Marks]

The complex number z=-2i in trigonometric form equals

$(a)\ 2(\cos 90^{\circ} + \mathrm{i} \sin 90^{\circ})$ $(b) 2(\cos -90^{\circ} + \mathrm{i} \sin -90^{\circ})$
$(c) 2(\cos 0^{\circ} + i \sin 0^{\circ})$ $(d) 2(\cos 180^{\circ} + \mathrm{i} \sin 180^{\circ})$

Question No. 4 [3 Marks]

The number z=3-4i is represented on Agrand's diagram by the point A where A=

(a) (3,4) b) (3,-4) (c) (-3,4) (d) (-3,-4)

Question No. 5 [3 Marks]

If $z = a + bi, z + \bar{z} = 6, then\ a =$

(a) 3 b) -3 (c) 6 (d) -6

Question No. 6 [2 Marks]

The solution set of the equation $z^2 + 9 = 0\ in\ \mathbb{C}$ is

(a) {3,-3} b) {i,-i} (c) {3i,-3i} (d) {-9}

Question No. 7 **[3 Marks]**

If A is a matrix of order 2 x 2 and det (A)=5, then det (3A)=…

(a) 5 b) 15 (c) 45 (d) 10

Question No. 8 **[2 Marks]**

$$\begin{vmatrix} \sin x & \cos x \\ \cos x & -\sin x \end{vmatrix} =$$

(a) zero b) 1 (c) -1 (d) cos 2x

Question No. 9 **[3 Marks]**

$$\begin{vmatrix} 3 & 1 & 2 \\ 4 & 0 & 5 \\ 5 & 3 & 7 \end{vmatrix} = \begin{vmatrix} 1 & 1 & 2 \\ 1 & 0 & 5 \\ 1 & 3 & 7 \end{vmatrix} + \cdots.$$

(a) $\begin{vmatrix} 2 & 1 & 2 \\ 3 & 0 & 5 \\ 4 & 3 & 7 \end{vmatrix}$ b) $\begin{vmatrix} 3 & 1 & 2 \\ 4 & 0 & 5 \\ 5 & 3 & 7 \end{vmatrix}$ (c) $\begin{vmatrix} 2 & 1 & 2 \\ 4 & 0 & 5 \\ 2 & 3 & 7 \end{vmatrix}$ (d) $\begin{vmatrix} 2 & 1 & 2 \\ 2 & 0 & 5 \\ 3 & 3 & 7 \end{vmatrix}$

Question No. 10 **[3 Marks]**

If $\begin{vmatrix} a & b & c \\ d & e & f \\ x & y & z \end{vmatrix} = 12$ then $\begin{vmatrix} a & d & x \\ b & e & y \\ c & f & z \end{vmatrix} = \cdots$

(a)-12 b) 12 (c) zero (d)24

Question No. 11 **[3 Marks]**

The solution set of equation $\begin{vmatrix} x & 1 & 2 \\ 0 & x & 3 \\ 0 & 0 & x \end{vmatrix} - 8 = 0$ in $\mathbb{R}$ *is*

(a){-2} b){2} (c){2,-2} (d){8}

Question No. 12 **[3 Marks]**

The singular matrix from the following matrices is …

(a) $\begin{pmatrix} 3 & 4 \\ 5 & 6 \end{pmatrix}$ b) $\begin{pmatrix} 3 & -2 \\ 6 & -4 \end{pmatrix}$ (c) $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$ d) $\begin{pmatrix} 2 & 4 \\ -3 & 6 \end{pmatrix}$

Question No. 13 **[2 Marks]**

If $= \begin{pmatrix} 1 & 2 \\ 3 & -5 \end{pmatrix}$, then adj (A)=…

(a) $\begin{pmatrix} -5 & -2 \\ -3 & 1 \end{pmatrix}$ b) $\begin{pmatrix} 3 & -5 \\ 1 & 2 \end{pmatrix}$ (c) $\begin{pmatrix} 2 & 1 \\ -5 & 3 \end{pmatrix}$ d) $\begin{pmatrix} -5 & 3 \\ 2 & 1 \end{pmatrix}$

Question No. 14 **[3 Marks]**

If A and B are two non singular matrices, then $(AB)^{-1}$ equals…

(a) AB b) $A^{-1}B^{-1}$ (c) $B^{-1}A^{-1}$ (d)$(BA)^{-1}$

Question No. 15 **[3 Marks]**

If A, B, C are three matrices of order n x n and $ABC = I$, then $B^{-1} = \cdots$

(a) $A^{-1}C^{-1}$ b) $(AC)^{-1}$ (c) $C^{-1} + A^{-1}$ (d) CA

Question No. 16 **[3 Marks]**

If A,B are two matrices of order 3 x 3 and A=2B, det(B)=5, then det(A)=

(a) 8 b) 16 (c) 32 (d) 40

Question No. 17 **[3 Marks]**

For any square matrix A if $A^2 - A + I = 0$ then $A^{-1} =$

(a)A^{-2} b) $A + I$ (c) $I - A$ (d) $A - I$

Question No. 18 **[3 Marks]**

Which of the following value makes the matrix $\begin{pmatrix} x & 2 \\ -3 & 3 \end{pmatrix}$ is singular

(a) 2 b) -2 (c) 0.5 (d) -3

GOOD LUCK,

Dr. Ahmed Megahed

Model Answer

No. of Question	Answer
1	c
2	a
3	b
4	b
5	a
6	c
7	c
8	c
9	a
10	b
11	b
12	b
13	a
14	c
15	d
16	d
17	c
18	b

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