كلية الحاسبات والمعلومات

المستوي الاول برنامج المعلوماتية الطبية

الفصل الدراسي الاول

٢٠٢٠ـ٢٠٢١

تاريخ الامتحان: ٢٠٢١/٢/٢٧

نموذج اجابة   ورقة كاملة

المادة: تأهيلى الرياضيات

أستاذ المادة : د / أحمد مصطفي عبدالباقي مجاهد

استاذ مساعد بقسم الرياضيات بكلية العلوم ببنها

صورة من الاسئلة

Choose the correct answer [25 questions in 3 pages]:

1- The point $A(2, -3,0)$ lies
(a)on the z-axis   b) in the y z-plane   (c) in the x y- plane   (d)on the x-axis

2- The distance between the point (2,-3,5) and the x-z plane equals length unit.
(a) 2   b) -3   (c) 3   (d) 5

3- The perpendicular distance from the point (-5,-3,4) to the x- axis = … length unit.
(a) 3   b) 5   (c) 4   (d) 10

4- If A(-4,-2,3), B(1,2,k) and the length of $\overline{AB} = \sqrt{77}$, then k=
(a) -3 or 6   b)) -3 or 12   (c)) 9 or 6   (d) 9 or -3

5- The radius length of the sphere $x^2 + y^2 + z^2 + 2x - 6y + 10z - 1 = 0$ equals
(a) 3   b) 4   (c) 5   (d) 6

6- The equation of the sphere whose center is the origin and its radius length=3 is
$(a)\quad x^2 + y^2 + z^2 = 3$ $(b) x^2 + y^2 + z^2 = 9$
$(c)(x - 2)^2 + (y - 3)^2 + (z - 2)^2 = 9$ $(d) x^2 + y^2 + z^2 + 9 = 0$

7- The area of the sphere whose equation $x^2 + y^2 + z^2 - 25 = 0$ equals… area units
(a) $20\ \pi$ b) $40\ \pi$ (c) $25\ \pi$ (d) $100\ \pi$

8- $\begin{vmatrix} \sin x & \cos x \\ \cos x & -\sin x \end{vmatrix} =$
(a) zero   b) 1   (c) -1   (d) cos 2x

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

(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) $\begin{vmatrix} 2 & 1 & 2 \\ 2 & 0 & 5 \\ 3 & 3 & 7 \end{vmatrix}$

10- 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

11- 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}

12- 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) $\begin{pmatrix} 2 & 4 \\ -3 & 6 \end{pmatrix}$

13- 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) $\begin{pmatrix} -5 & 3 \\ 2 & 1 \end{pmatrix}$

14- 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)$(BA)^{-1}$

15- 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

16- 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

17- For any square matrix A if $A^2 - A + I = 0$ then $A^{-1} =$
(a)A^{-2} b) $A + I$ (c) $I - A$ (d) $A - I$

18- Value of which makes the matrix $\begin{pmatrix} x & 2 \\ -3 & 3 \end{pmatrix}$ is singular is …

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

19- 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

20- 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}

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

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

22- 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)

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

$(a)\ 2(\cos 90° + i\sin 90°)$ $(b) 2(\cos -90° + i\sin -90°)$

$(c) 2(\cos 0° + i\sin 0°)$ $(d) 2(\cos 180° + i\sin 180°)$

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

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

25- $=\ldots[5(\cos 10° + i\sin 10°)]^2$

$(a)\ 25(\cos 100° + i\sin 100°)$ $(b) 10(\cos 100° + i\sin 100°)$

$(c) 25(\cos 20° + i\sin 20°)$ $(d) 10(\cos 20° + i\sin 20°)$

GOOD LUCK,

Dr. Ahmed Megahed

Model Answer

No. of Question	Answer
1	c
2	c
3	b
4	d
5	d
6	b
7	d
8	c
9	a
10	b
11	b
12	b
13	a
14	c
15	d
16	d
17	c
18	b
19	c
20	c
21	a
22	b
23	b
24	a
25	c

Dr. Ahmed Mostafa Megahed