

دمج / ش

جمهورية مصر العربية

وزارة التربية والتعليم والتعليم الفني

امتحان شهادة إتمام الدراسة الثانوية العامة لطلاب الدمج التعليمي

المادة: الرياضيات التطبيقية (ديناميكا بالإنجليزية) (دمج شل)

(الإجابة في نفس كراسة الأسئلة) الدور الأول ٢٠٢٢ م زمن الإجابة: ساعتان

السؤال	الدرجة	توقيع	
		مقرر السؤال	مراجع السؤال
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٢			
٣			
٤			
٥			
٦			
٧			
٨			
٩			
١٠			
المجموع			

مجموع الدرجات

رقم المراقبة

مجموع الدرجات بالحروف :

امضاءات المراجعين :

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الدور الأول ٢٠٢٢ م

(الإجابة في نفس كراسة الأسئلة)

رقم المراقبة

اسم الطالب رباعيا /

الدراسة /

الإدارة /

رقم الجلوس /

الحافظة /

التوقيع

الإسم

-١

-٢

توقيع الملاحظين بصحة البيانات
ومطابقة عدد أوراق كراسة الإجابة
عند استلامها من الطالب

2022

عزير مصرح الطلاب بالكتابة في هذه الصفحة

2022

عزير مصرح الطلاب بالكتابة في هذه الصفحة

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Calculator is allowed**Choose the correct answer from those given**

- (1) If the velocity of a particle is determined by the relation $v = x^2 - 3$, where $\|\vec{v}\|$ is in (m/sec), $\|\vec{x}\|$ is in meter, then when $x=2m$. the acceleration of this particle $a = \dots\dots\dots m/s^2$

(a) 4

(b) 3

(c) 1

(d) zero

- (2) If a body of mass 17 kg. moves under the action of the force $\vec{F} = 8\vec{i} + 15\vec{j}$, where $\|\vec{F}\|$ is in Newton, then the magnitude of the acceleration equals.....m/s²

(a) zero

(b) 1

(c) 2

(d) 3

((بقية الأسئلة في الصفحة الثانية))

(3) If a force of magnitude 170 Newton acts on a body of mass 5 kg, in the same direction of its motion for $\frac{1}{17}$ sec to change its velocity from:

$v_1 = 15$ m/sec to v_2 , then $v_2 = \dots\dots\dots$ m/sec

- (a) 13 (b) 17 (c) 15 (d) 25

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(4) If a body moves on a straight line under the effect of the force $\vec{F} = 6\vec{i} - 3\vec{j}$ from the point A(-1,2) to the point B(3,4), where \vec{i} , \vec{j} are orthogonal unit vectors, then the work done by this force = work unit

- (a) 18 (b) 12 (c) 6 (d) 3

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((بقية الأسئلة في الصفحة الثالثة))

(5) A particle moves in a straight line, from rest from a fixed point its algebraic measure of its velocity after time t second is given by the relation $v = (1 - \cos t)$, then the algebraic measure of its displacement vector $\vec{s} = \dots\dots\dots$

- (a) $t - \cos t$ (b) $t + \cos t$
 (c) $t - \sin t$ (d) $t + \sin t$

.....

(6) If a constant force acts on a body at rest, the magnitude of its impulse on it is equal to $35.28 \text{ N} \cdot \text{s}$ during $\frac{1}{25}$ second , then the magnitude of this force =

- (a) 90 Newton (b) 882 gm.wt (c) 882 Kg.wt (d) 882 Newton

.....

((بقية الأسئلة في الصفحة الرابعة))*

(7) A body is suspended to a spring scale fixed in the ceiling of a lift, the scale reading was **18** kg.wt when the lift was ascending with uniform acceleration **a** m/s² and the scale reading was **15** kg.wt when the lift was descending with uniform acceleration **2a** m/s², then the mass of the body = kg

(a) 17

(b) 15

(c) 18

(d) 33

(8) If the two Forces $\vec{F}_1 = \vec{i} + 5\vec{j} + 7\vec{k}$, $\vec{F}_2 = 2\vec{i} - \vec{j} - 2\vec{k}$, act on a body for two seconds, then the magnitude of the impulse of the resultant of the two forces on this body = impulse unit.

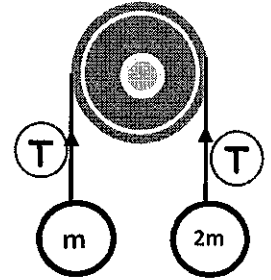
(a) $5\sqrt{2}$ (b) $10\sqrt{2}$ (c) $15\sqrt{2}$ (d) $100\sqrt{2}$

(9) If a body of mass 1 kg. fall down from a height 20 m. above the ground surface, then the **sum** of its kinetic and potential energy after 1 second from the instant of falling =joule.

- (a) 196 (b) 98 (c) 49 (d) 20

(10) In the opposite figure:

The small pulley is smooth, the system moves from rest, if the magnitude of the tension in the string = 30 N, then the pressure on the pulley =N



- (a) 30 (b) $30\sqrt{2}$ (c) 15 (d) 60

(11) A smooth ball of mass 400 gm moves with velocity 24 cm/sec , collides with another smooth ball of mass 200 gm at rest , if the velocity of the first ball after the collision changed to 16 cm/sec in its previous direction, then the velocity of the second ball after collision = cm/sec

- (a) zero (b) 8 (c) 16 (d) 24

(12) An airplane moves horizontally under the effect of resistance directly proportional as the square of its velocity, if the resistance equal 324 kg.wt, when its velocity 75 m/sec and its maximum velocity equal 125m/sec, then the engine power of the airplane = horse.

- (a) 1250 (b) 1500 (c) 1750 (d) 2000

(13) A body of mass 200 gm moved from rest from the top of an inclined smooth plane of length 25 m , inclined to the horizontal by angle of sine 0.1 , then the kinetic energy of the body when it reached the bottom of the plane =..... joule

- (a) 4.9 (b) 9.8 (c) 490 (d) 980

(14) A rigid body is projected vertically upwards and its height x meter after t second from its projection is given by the relation $x = 39.2t - 4.9t^2$, then the maximum height of the body =meter.

- (a) 4.9 (b) 9.8 (c) 58.4 (d) 78.4

(15) A body of mass 100 kg moved with acceleration 3 m/s^2 up a smooth inclined plane, inclined to the horizontal by angle of measure 30° , under the effect of a force \vec{F} acts in the direction of the line of the greatest slope upwards, then the magnitude of the force $\vec{F} = \dots\dots\dots$ Newton

- (a) 790 (b) 300 (c) 190 (d) 490

(16) If a car of mass 2 tons, moves with velocity 90 km/h, then its momentum = $\dots\dots\dots$ Kg.m/s

- (a) 1800 (b) 2000 (c) 25000 (d) 50000

(17) If a variable force $F = 3s^2 + 1$ acted on a particle where magnitude of the force \vec{F} is in Newton , algebraic measure of its displacements s is measured in meter , then the work done by the force to move the particle in the direction parallel to its line of action from $s=2$ m to $s=3$ m = ... joule

- (a) 13 (b) 20 (c) 36 (d) 49

(18) A ball started motion on a rough horizontal ground with initial velocity 28 m/sec and stopped after 10 second, then the kinetic coefficient of friction between the ball and the ground equals

- (a) $\frac{1}{10}$ (b) $\frac{2}{7}$ (c) $\frac{5}{18}$ (d) 1

((بقية الأسئلة في الصفحة العاشرة))

(19) If a body moves under the effect of the force $\vec{F} = 2\vec{i} + \vec{j}$, its displacement vector \vec{s} as a function of time is given by the relation $\vec{s} = t^2\vec{i} + 5t\vec{j}$, where \vec{i} , \vec{j} are two orthogonal unit vectors, where $\|\vec{F}\|$ is in Newton, $\|\vec{s}\|$ is in meter, t is in second, then when $t = 4$ sec the power equals.....

- (a) 2 watt (b) 21 watt (c) 5 watt (d) 28 watt

(20) The Kinetic energy of a projectile of mass 1 kg moves with velocity 30 m/sec Equals Joule

- (a) 3000 (b) 2000 (c) 1450 (d) 450

(((انتهت الأسئلة)))

*** Öğün ***

Handwriting practice sheet with 20 horizontal lines.

*** مسودة ***

A series of horizontal dashed lines for writing, typical of a draft document.