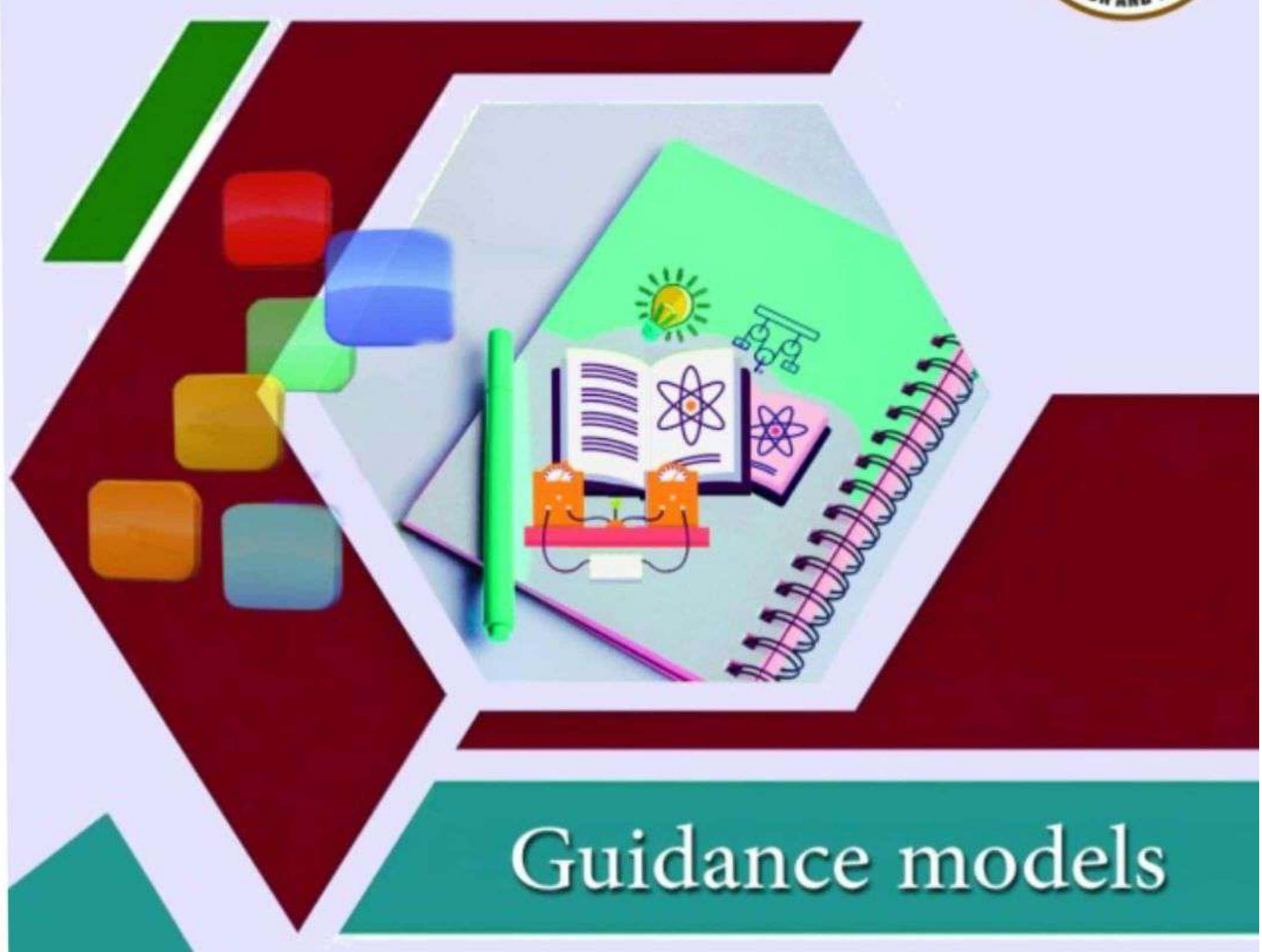
Physics

First Sec.



Guidance models

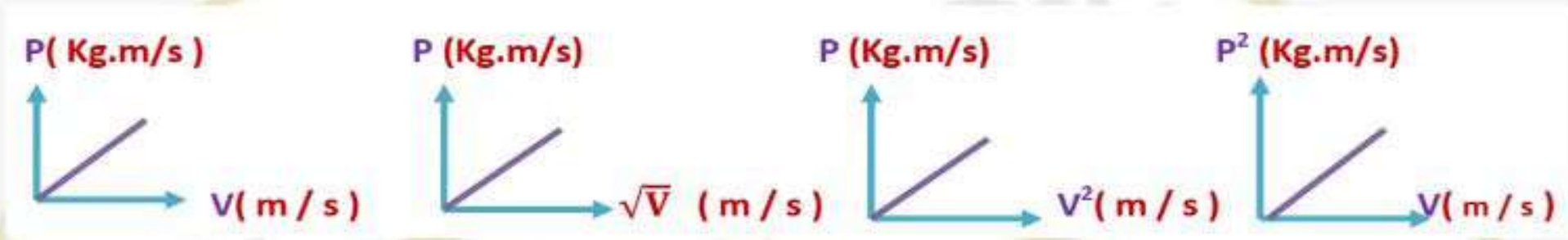
اختبار استرشادي فيزياء باللغة الانجليزية - الصف الأول الثانوي-الفصل الدراسى الثانى -٢٠٢٤

The Ministry of Education **First Secondary**
Science Development Office **Trial Exam** **Time: 1 ½ hours**

Answer all of the following questions:

First: Choose the correct answer:

1- Which of the following graphs represents the relation between linear momentum and the velocity of an object?



2- Two moving objects under the effect of two equal forces, if the mass of the first object equals twice the second object, so the ratio between acceleration of the first object to the second object equals ……

a) $\frac{1}{1}$ b) $-\frac{2}{1}$ c) $\frac{1}{2}$ d) $\frac{1}{4}$

3- A car its mass 1000 kg moves with uniform velocity equals 20 m/s, so the resultant force affecting on it equals ……

a) 2×10^4 N b) 50 N c) 0.02 N d) 0

4- A stone its mass 600 g tied in a thread its length equals 10 cm which rotates with a velocity equals 3 m/s in a horizontal plane, so the centripetal gravitational force equals ……

a) 18 N b) 32 N c) 54 N d) 540 N

5- An object moves with uniform circular motion, if the tangential velocity and its radius of rotation increase into the double, so the centripetal acceleration that moves by this object ……

a) decreases into half b) remains constant
c) increases into double d) increases four times

6- A child pulls a toy car its mass equals 0.5 kg on a frictionless horizontal road by a force equals 25 N, so the magnitude of the Earth's gravitational force on the toy car equals …….. (if you know that g = 10 m/s²)

a) 0.5 N b) 5 N c) 20 N d) 25 N

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7- A ball is projected vertically upwards till it reaches its maximum height then returns to the point of projection, so the sign of the work done by the gravitational force on the ball during its rising up & falling down respectively

	During rising up	During falling down
a)	positive	Positive
b)	Negative	Negative
c)	Positive	Negative
d)	negative	positive

8- The angle between the centripetal gravitational force and the centripetal acceleration for an object moves in a circular path equals ……
a) zero b) 90° c) 180° d) can't be determined

9- Two objects having the same linear momentum, the mass of the first object equals 5 kg and its velocity equals 20 m/s while the mass of the second object equals 15 kg so its velocity equals ……..
a) 0.15 m/s b) 5.55 m/s c) 6.67 m/s d) 20 m/s

10- An object is projected vertically upwards, so during rising up …….
a) kinetic energy increases and potential energy decreases
b) kinetic energy decreases and potential energy increases
c) both of kinetic and potential energies increase
d) both of kinetic and potential energies decrease

11- Two objects fall at the same instant, where the mass of the first object equals three times the mass of the second object and the height of the first object equals 1/3 the second object, so the ratio between kinetic energy of the first to the kinetic energy of the second on reaching the Earth's surface ($\frac{(KE)_1}{(KE)_2}$) equals ……..
a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{1}{1}$ d) $\frac{3}{1}$

12- Two satellites, their masses 5×10^3 kg , 15×10^3 kg rotate around the Earth at the same height, so the ratio between the orbital velocity of the first

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satellite to the second satellite $\frac{V_1}{V_2}$ equals .....

a) $\frac{1}{1}$ b) $\frac{1}{3}$ c) $\frac{3}{1}$ d) $\frac{1}{\sqrt{3}}$

13- If the maximum value of the work done on a body is W, when an object moves in a direction inclined to the direction of the force acting on it at an angle of 60°. Then The work done is equal to.....

a) W b) $\frac{W}{2}$ c) $\frac{\sqrt{3}\,W}{2}$ d) $\frac{W}{\sqrt{2}}$

14- An object (A) has a mass M and is moving at a velocity v, its kinetic energy K another object (B) If its velocity is 3v and its M/3, then kinetic energy of object B.....

a) K b) 3K c) 6K d) 9K

<u>Second: Essay Questions:</u>

1- An object its weight equals 200 N revolve in a circular path its radius equals 2 m by a centripetal gravitational force 10 N, Calculate the object's tangential velocity (g =10 m/s²)

2- Calculate the maximum height for an object its mass equals 12 kg when it is projected with initial velocity equals 20 m/s