This is a Class 1 exam

Lebanon Evangelical School
for Boys and Girls Loueizeh - Baabda

Stage Exam 03
10FEB2026

Do NOT write in this box. Your MARK will be placed here.

Subject :	Physics	
Class :	11SE	
Teacher :	Mr. Mohamad Kanj	
Duration :	1 hour	
Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

No1:

The element with atomic number 95 is Americium (Am).

The most common and stable isotopes of Americium is Am-239 (mass number)

$$^{239}_{95}Am \longrightarrow X + {}^{0}_{+1}e$$

$$X \longrightarrow Y + {}^{4}_{2}He$$

a- Fill in the missing mass numbers and atomic numbers.
b- Identify particles X and Y. (Hint: $^{239}_{94}PU$ is plutonium and $^{235}_{92}U$ is Uranium)
c- Identify the types of the nuclear reactions.
d- Write the complete equations of the nuclear reactions.

No2:

a- Name all sources of energy.
b- Define biodegradable pollutants and non-degradable pollutants.
c- Describe briefly how electricity is produced in a hydroelectric power plant.
d- State some of renewable source of energy (at least 3).
e- State some of non-renewable source of energy (at least 3).

No3:

The smog over Beirut is usually thick and brown:

a- Give all its possible causes.
b- Name some of its chemical constituents.
c- Suggest two methods to reduce pollution caused by cars.
d- Suggest some means to reduce pollution in our beautiful country.

No1: **(7 points)**

a- Let A_1 the mass number of X

And B_1 the atomic number of X

Let A_2 the mass number of Y

And B_2 the atomic number of Y

Conservation of mass number :

239 = A_1 + 0

A_1 = 239 (0.5 point)

239 + A_2 = 4

A_2 = 235 (0.5 point)

A_2 = 235

Conservation of atomic number :

95 = B_1 + 1

B_1 = 94 (0.5 point)

94 = B_2 + 2

B_2 = 92 (0.5 point)

b- X = $^{239}_{94}PU$ (0.5point)

Y = $^{235}_{92}U$ (0.5 point)

c- First reaction = B^+(Beta plus) (1 point)

Second reaction = α (alpha) (1 point)

d- $^{239}_{95}Am$ ——————> $^{239}_{94}PU + {}^{0}_{+1}e$ (1 point)

$^{239}_{94}PU$ ——————> $^{235}_{92}U + {}^{4}_{2}He$ (1 point)

No2: **(7points)**

a- **All Sources of energy**: (2 points) (any four correct answers score 2 points)
1-wood
2- coal- Electrical power
3- Crude oil
4- Natural gas
5- Radioactive materials.

b- **Biodegradable pollutants**: (1 point)

are materials, such as sewage or wastewater, that rapidly decompose by natural processes.

Non-degradable pollutants: (1 point)

are materials that either do not decompose or decompose slowly in the natural environment.

c- **Hydroelectric power plant**: Water stored in mountain lakes or behind dams is directed at the blades of huge turbines which convert the mechanical energy of the flowing water into electrical energy. (1 point)

d-**Renewable source of energy:** (1 point)

- Sunlight or solar energy
- Wind energy
- Hydroelectric power plant
- Biomass fuels

e- **Non-renewable source of energy**: (1 point)

- Coal
- Oil (petroleum)
- Natural gas
- Nuclear power plants

No3: **(6 points)**

a- Smoke due to the burning of fossil fuels, biomass fuel, ... (1 point)
b- Carbon dioxide, carbon monoxide, ... (1 point)
c- Using smoke filters, good gasoline and good engines. (2 points)
d- The obligatory usage of smoke filters in all fossil fuel engines, ... (2 points)