



OGGETTO: CONCORSO PUBBLICO, PER TITOLI ED ESAMI, PER L'ASSUNZIONE CON CONTRATTO DI LAVORO A TEMPO PIENO E INDETERMINATO DI N. 4 UNITÀ DI PERSONALE PROFILO RICERCATORE – III LIVELLO PROFESSIONALE – PRESSO IL MUSEO STORICO DELLA FISICA E CENTRO STUDI E RICERCHE “ENRICO FERMI”.

Bando n. 11(22) – profilo B – codice concorso B1122-RIC-BC

Elenco domande predisposte per la prova orale

Domande n. 1:

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali

Quesito 2

Descriva un'applicazione della tecnica spettroscopia Raman e/o spettroscopia di neutroni presso large scale facilities per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria.

Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

She followed the regular courses, and, in addition, she was asked to attend the informal meeting led mostly by Fermi, sometimes by Rasetti. “Don’t be scared.” Fermi told Ginestra Giovene “All we do here is to [sic] play a game. We call it the game of two lire. Anybody can ask a question of anybody else. The person who does not give the right answer pays one lira. But if the one who asked the question cannot provide a satisfactory answer, then he pays two lire. As you can see, it’s all very simple. Now let’s start. Who has a question for Miss Giovene?” Edoardo, who from his teachers had learned the technique of always talking half in jest, half in earnest, said he had a question ready, and [using a blatantly sexist expression which also, in my opinion, did not at all reflect Amaldi’s intentions, but which fell within the joking context] one most suited to a woman: “As you know, the boiling point of olive oil is higher than the melting point of tin. How can you explain that it is possible to fry in olive oil inside a tinned skillet?” Despite the trepidation, Ginestra was able to figure out the correct answer: “The oil does not boil when frying. It boils the water contained in the food.



Domande n. 2:

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali

Quesito 2

Descriva un'applicazione della tecnica spettroscopia infrarossa a trasformata di Fourier e/o spettroscopia di neutroni presso large scale facilities per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria.

Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

The new building was of sober architecture. It was planned with foresightedness and largeness of means. It was well equipped by European standards when I was in the university. Corbino hold [sic] his classes in a wide room with rows of benches that came down toward the front from considerable height near the black wall. The teacher's desk was on a raised platform. Corbino, short and chubby, hardly emerged from behind it. When he climbed the platform with little jumpy steps or when he jerkily ran to the blackboard and lifted his body from the floor in the effort to write high enough, he cut a clownish figure. But when he started talking, the room became still, the attention of the class centered on his shiny head. The little man became impressive. Electricity, a subject which I loathed, became temporarily enjoyable.

Domande n. 3: (ESTRATTA)

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali

Quesito 2

Descriva un'applicazione della tecnica fluorescenza a raggi X e/o spettroscopia Raman per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria.



Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

Dear Sir! In your interesting paper "On the theory of Quantum Mechanics" you have put forward a theory of the Ideal Gas based on Pauli's exclusion Principle. Now a theory of the ideal gas that is practically identical to yours was published by me at the beginning of 1926. Since I suppose that you have not seen my paper, I beg to attract your attention on it.

Domande n. 4: (ESTRATTA)

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali

Quesito 2

Descriva un'applicazione della tecnica fluorescenza a raggi X e/o spettroscopia infrarossa in trasformata di Fourier per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria

Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

The field of a charged particle moving through a medium having dielectric properties is affected by the polarization of the medium. We shall first calculate the field by applying classical electrodynamics. The amount of energy lost by the particle at distances greater than a certain minimum distance b from the path of the particle will then be calculated as flux of the Poynting vector across a cylindrical surface of radius b having the path of the particles as axis. We may reasonably hope to get in this way a correct estimate of the losses due to the atoms for which b is somewhat larger than the interatomic distances.

Domande n. 5: (ESTRATTA)

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali



Quesito 2

Descriva un'applicazione della tecnica spettroscopia Raman e/o spettroscopia infrarossa in trasformata di Fourier per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria.

Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

The slowing down, or damping, of fast neutrons as they diffuse through a damping medium is the result of the neutrons' loss of energy as they collide with atoms of the damping medium. This energy loss per collision depends on two factors: (a) the relative masses of the neutron and the scattering atom; and (b) the change in direction suffered by the neutron because of the collision. It can be shown from the laws of conservation of momentum and energy that the energy loss decreases as the damping atom becomes heavier; for this reason hydrogen is the most effective damping medium.

Domande n. 6:

Quesito 1

Descriva la sua esperienza nelle tecniche sperimentali e/o nei metodi di analisi dati per la fisica dei Beni Culturali

Quesito 2

Descriva un'applicazione della tecnica fluorescenza a raggi X e/o spettroscopia di neutroni presso large scale facilities per materiali come lapidei, carta, materiali organici, pigmenti e un metodo innovativo di analisi dati tramite ML o chemometria.

Quesito 3 (prova Inglese)

Legga e traduca il seguente brano

A large number of radioactive series found among the fission products of uranium have been reported. Thus far, however, the work has been confined mostly to the identification and the genetic relationships of the radio-elements which arise from uranium fission. The present work is part of a systematic attempt to determine in a quantitative way the probability that when uranium fission occurs a given radioactive series will appear. We shall call this probability the branching ratio of the radioactive series.



Roma, il 15/03/2023

Il Presidente della commissione

