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Online final exam practical questions ED

Definition of refractive indices. Law of light refraction. Factors influencing the value of index of refraction. *Parts and functions of Abbe-refractometer.*
Definition of critical angle and total reflection. Formation of Snell circle. *Parts and functions of Abbe-refractometer.*
Definition of absorbance and transmission. Relation between absorbance and transmission. Lambert-Beer law. *Parts and functions of an absorption spectrometer.*
Definition of absorption spectra. Information gathered from the absorption spectra. *Parts and functions of an absorption spectrometer.*
Definition of polarized light. Connection between linearly and circularly polarized light. Definition and interpretation of optical activity. *Parts and function of polarimeter.*
Definition of specific rotation. Factors influencing the specific rotation. Biot-law. *Parts and function of polarimeter.*
Focal accomodation of the eye. Measuring focal accomodation. Refractive media and image formation of the eye. *Refractive disorders of eye and the way for correction of them.*
Definition of limiting angle of vision and visual acuity. Measuring visual acuity.Factors influencing visual acuity. *Refractive disorders of eye and the way for correction of them.*
Parts and function of scintillation counters. Processes happening in the scintillation crystal.
Parts and function of scintillation counters. Processes happening in the PM tube. Signal selection. Sources of noise pulses.
Attenuation of gamma radiation. Definition of halv value thickness and attenuation coefficient. *Parts and function of scintillation counter.*
Definition of mass attenuation coefficient. The dependence of mass attenuation coefficients due to different processes on the photon energy. *Parts and function of scintillation counter.*
Definition of oscillation, harmonic oscillation, damped and undamped free oscillation. Definition of driven oscillation. T*he concept of resonance and the interpretation of the resonance curve.*
Elastic deformation. Hooke's law. T*he concept of resonance and the interpretation of the resonance curve.*
Definition of impedance. Characterization of ohmic resistance and capacitive reactance. *Electric model of the skin and the possible simplifications on the model.*
Definition of basic dose concepts (absorbed dose, exposure, equivalent and effective dose) and dose rate. *Function of thermoluminescence dosimeter.*
Definition of basic dose concepts (absorbed dose, exposure, equivalent and effective dose) and dose rate. *Parts and function of ionization chambers.*
Definition of electric gain. Calculating gain level. *Frequency response curve of the amplifier.*
Frequency response curve of the amplifier. Negative feedback. Advantage and disadvantage of negative feedback.
Parts and function of Coulter-counter.

Concept of diffusion. Definition of concentration gradient. Fick's first law. *The shape and time dependence of the concentration distribution of the diffusing material (in the case of a point-like intial distribution).*
Parts and function of X-ray tube. *Spectrum of X-ray tube.*
Spectrum of X-ray tube. The effect of voltage, current and anode material on the X-ray spectrum.
The law of (X-ray radiation) decay. Definition of half value thickness and attenuation coefficient. *The relationship between mass attenuation coefficient of photoeffect and the atomic number of the absorbent.*
Definition of mass attenuation coefficient. Dependence of (partial)mass attenuation coefficients on the photon energy. *The relationship between mass attenuation coefficient of photoeffect and the atomic number of the absorbent.*
Parts and function of scintillation counters. Processes happening in the scintillation crystal.
Parts and function of scintillation counters. The pulse amplitude spectrum of gamma radiation in the scintillation counter.
Definition of sound. The human hearing range (frequency, intensity). *Shape and interpretation of hearing threshold curve*.
Connection between sound intensity and sensation - phon and son scales. *Shape and interpretation of the audiogram.*
Characterization of monostable multivibrators. *Schematic structure of a pacemaker, typical time parameters.*
Characterization of bistabil multivibrators. *Schematic structure of a pacemaker, typical time parameters.*
Interpret the formation of an ECG curve. Concept of active and passive electrodes. *Ploting an integral vector in the Einthoven triangle.*
Function of differential amplifier. Comparison of Einthoven and Wilson lead systems. *Ploting an integral vector in the Einthoven triangle.*
Definition of volume flow rate. Continuity law. *Interpretation of Hagen-Poisseuille law.*
Definition of stationary, pulsed; laminar, turbulent flow. *Interpretation and assumptions of Hagen-Poiseuille law.*
Concept of receptor and action potentials. Concept of frequency and amplitude coding. *Interpretation of Weber-Fechner law.*
Schematic description of sensory process. *Interpretation of Stevens law.*
Decay law of X-ray radiation. Interpretation of HU scale. *Comparison of summation image and CAT-scan image.*
Theoretical background of CAT-scan image formation. Shannon-Nyquist law. *Comparison of summation image and CAT-scan image.*
Definition of sound. Production and detection of ultrasound. *Reflection of US: A, B and M echo images.*
Definition of sound. Production and detection of ultrasound. *Doppler principle and Doppler US image.*