Unit 5 - Construction of Ultrafast Laser and Measurement of Pulses

New Assessment week 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-28, 23:59 IST.

1) Pump-probe spectroscopy involves two time-delayed identical pulses: *1 point*

- they are two neighboring pulses in a pulse train
- they are two pulses created from a single pulse by a beam splitter
- they are from two different femtosecond laser sources
- one of the from a femtosecond laser source and another from a nanosecond laser source.

No, the answer is incorrect.
Score: 0
Accepted Answers:
they are two pulses created from a single pulse by a beam splitter

2) A vibrational wavepacket is prepared when: *1 point*

- excitation is performed by a short pulse
- excitation is performed by a broad pulse
- excitation is performed by sunlight
- excitation is performed by laser beam.

No, the answer is incorrect.
Score: 0
Accepted Answers:
excitation is performed by a short pulse

3) Time-correlated single photon counting (TCSPC) involves *1 point*

- two optical pulses
- only electronics
- a pump-probe scheme
- a single pulse and an electronic detection system

No, the answer is incorrect.
Score: 0
Accepted Answers:
a single pulse and an electronic detection system

4) Fluorescence up-conversion involves *1 point*

- two-photon photoemission process
- high harmonic generation process
- white light generation process
- sum frequency generation process.

No, the answer is incorrect.
Score: 0
Accepted Answers:
sum frequency generation process.

5) Transient absorption spectroscopy involves *1 point*

- a borad white light source as probe
- a narrow bandwidth source as probe
- any source as probe
- only 800 nm pulse as probe

No, the answer is incorrect.
Score: 0
Accepted Answers:
a borad white light source as probe

6) In transient grating spectroscopy, pump involves *1 point*

- one pulse
- two identical non-collinear pulses with zero delay
- two identical non-collinear pulses with 100 fs delay
- two identical non-collinear pulses with 100 ps delay.

No, the answer is incorrect.
Score: 0
Accepted Answers:
two identical non-collinear pulses with zero delay

7) Femtosecond stimulated Raman spectroscopy involves *1 point*

- one pulse as probe
- two identical pulses with zero delay as probe
- two identical pulses with 100 fs delay as probe
- two identical pulses with 100 ps delay as probe

No, the answer is incorrect.
Score: 0
Accepted Answers:
two identical pulses with zero delay as probe

8) Rate of linear photo-absorption depends on *1 point*

- only number of ground state species
- only intensity of the light
- both
- none of them

No, the answer is incorrect.
Score: 0
Accepted Answers:
both

9) An error function is obtained when a normalized Gaussian function is integrated within the limit *1 point*

- (-∞,+∞)
- (t1,t2)
- (0,0)
- none of them.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(t1,t2)

10) According to time-dependent quantum mechanics, time-dependent change in density is observed when *1 point*

- a pure state is prepared
- a pure state with a time-dependent phase factor is prepared
- a pure state without a time-dependent phase factor is prepared
- a superposition state is prepared

No, the answer is incorrect.
Score: 0
Accepted Answers:
a superposition state is prepared