

***** EXAMINATION *****

**CHARACTERIZATION OF A RESIDENTIAL FIRE
SPRINKLER USING PHASE DOPPLER INTERFEROMETRY**

1. **Studying the properties of two or more waves having a**
 - a) pattern of interference is pyrometry
 - b) pattern of interference is velocimetry
 - c) pattern of interference is hygrometry
 - d) pattern of interference is interferometry

2. **The computational fluid dynamics model of fire-driven fluid**
 - a) flow is a Large eddy simulations (LES)
 - b) flow is a Lattice Boltzmann methods (LBM)
 - c) flow is a fire dynamics simulator (FDS)
 - d) flow is a smoothed particle hydrodynamics (SPH)

3. **The measurement of the velocity of fluids is**
 - a) pyrometry
 - b) velocimetry
 - c) hygrometry
 - d) interferometry

4. **The optical method of fluid visualization is**
 - a) particle image velocimetry (PIV)
 - b) fire dynamics simulator (FDS)
 - c) hydroxyl tagging velocimetry (HTV)
 - d) molecular tagging velocimetry (MTV)

5. **A continuous probability distribution with two different**
 - a) modes is raised cosine distribution
 - b) modes is bimodal distribution
 - c) modes is inverse Gaussian distribution
 - d) modes is logistic distribution

6. **The particular kind of interval estimate of a population**
 - a) parameter is the tolerance interval
 - b) parameter is the prediction interval
 - c) parameter is the confidence interval
 - d) parameter is the credible interval

7. **Extremely sensitive detectors of light in the visible ranges**
 - a) of the electromagnetic spectrum is cathode ray tubes
 - b) of the electromagnetic spectrum is x-ray tubes
 - c) of the electromagnetic spectrum is travelling-wave tubes
 - d) of the electromagnetic spectrum is photomultiplier tubes
8. **The photo detector capable of converting light into either**
 - a) current or voltage is photodiode
 - b) current or voltage is electrolytic detector
 - c) current or voltage is flame detector
 - d) current or voltage is infrared detector
9. **The smallest item of information in an image is the**
 - a) texel
 - b) pixel
 - c) voxel
 - d) surfel
10. **A gas laser which uses an ionized gas as its lasing medium**
 - a) is the free electron laser
 - b) is the f-center laser
 - c) is the argon ion laser
 - d) is the krypton laser
11. **A device that emits light through a process called**
 - a) stimulated emission is the light beam
 - b) stimulated emission is the heat beam
 - c) stimulated emission is the light ray
 - d) stimulated emission is the laser beam
12. **The number of occurrences of a repeating event per unit**
 - a) time is frequency
 - b) time is radiation
 - c) time is spectrum
 - d) time is current
13. **The path a moving object follows through space is its**
 - a) plume
 - b) section
 - c) trajectory
 - d) parabola
14. **A two dimensional function of time delay and Doppler**
 - a) frequency is pulse repetition frequency
 - b) frequency is ambiguity function
 - c) frequency is frequency spectrum
 - d) frequency is coherency function

15. **The possible error involved in measuring things is**
- a) probability
 - b) solipsism
 - c) conductivity
 - d) uncertainty
16. **A method used to approximately solve over determined**
- a) systems is the method of least squares
 - b) systems is the method of contour integration
 - c) systems is the method of computing square roots
 - d) systems is the method of direct integration
17. **The standard deviation of the sampling distribution associated**
- a) with the estimation method is standard deviation
 - b) with the estimation method is a coefficient of variation
 - c) with the estimation method is a standard error of mean
 - d) with the estimation method is a confidence interval
18. **The measure of the variability of a statistical population**
- a) is standard deviation
 - b) is coefficient of variation
 - c) is standard error of mean
 - d) is confidence interval
19. **A data pre-processing technique used to reduce the effects**
- a) of minor observation error is deviation analysis
 - b) of minor observation error is data binning
 - c) of minor observation error is dot plot
 - d) of minor observation error is discrepancy function
20. **A Bragg cell that diffracts the frequency of light using**
- a) sound waves is a laser Doppler vibrometer
 - b) sound waves is an electro-optic modulator
 - c) sound waves is a regenerative amplifier
 - d) sound waves is an acousto-optic modulator

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