M/P ENT - 24 Total No. of Pages : 12

M.Phil./Ph.D. Entrance Examination, September - 2019 ELECTRONICS SCIENCE

Day and Date : Thursday, 19 - 09 - 2019 Time : 4.00 p.m. to 6.00 p.m.

Instructions : 1) All questions are compulsory.

- 2) Each question carries 2 marks.
 - 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
 - 4) Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
 - 5) Follow the instructions given on OMR Sheet.
 - 6) Rough work shall be done on the sheet provided at the end of question paper.
 - 7) Only non programmable calculators are allowed.
- 1) A literature review is an important part of the research process because
 - A) It is a summary of what literature is available on your topic
 - B) My supervisor likes to create more reading for me.
 - C) I like to visit the library and read generally around my topic.
 - D) It allows you identify and read key books and articles by some of the main figures who have written in the field
- 2) The writing of research reports is best regarded as:
 - A) just like writing an essay
 - B) an unnecessary chore
 - C) a skill
 - D) something that most students find easy

Seat No.

Total Marks : 100

- 3) The chapter that details the way in which the research was conducted is the _____ chapter.
 - A) Introduction B) Literature review
 - C) Research methodology D) Data analysis
- 4) This is an idea or image specifically invented for a given research and/or theory building purpose
 - A) Concept B) Construct
 - C) Definition D) Variables
- 5) In order to qualify as a random sample
 - A) every sub-sample of the population must be represented.
 - B) the researcher must pre-test the subjects.
 - C) a phone book must be used to generate random names.
 - D) every member of the population must have an equal chance of being chosen.

6) Chi-square test is an example of

- A) Parametric test B) Non-Parametric test
- C) Descriptive test D) Survey test

7) The correlational research seeks to _____.

- A) Determine the relation between two or more variables
- B) Study the effect of one on other
- C) Both A and B
- D) None of these

- 8) A common test in research demands much priority on
 - A) Reliability B) Usability
 - C) Objectivity D) All of the above
- 9) If "*" is called "+", "/" is called "*", "-" is called "/", "+" is called "-". 40/20 - 5*10 + 5 = ?
 - A) 170 B) 160
 - C) 150 D) None of these
- 10) Look closely at the letter pattern and choose the series from the options given that will correctly fill the blank at the end of the series. FAG, GAF, HAI, IAH,

A)	JAK	B)	HAL
C)	НАК	D)	JAI

11) The final result of a study will be more accurate if the sample drawn is

- A) taken randomly B) fixed by quota
- C) representative to the population D) purposive

12) Action research means

- A) A longitudinal research
- B) An applied research
- C) A research initiated to solve an immediate problem
- D) A research with socioeconomic objective

13) As the frequency increases, the capacitive reactance _____. A) remains constant B) increases D) becomes very high C) decreases 14) R.M.S value means _____. A) root mean square B) rate mean second C) root median second D) rate mode second 15) The ability to give same output reading when same input value is applied repeatedly is known as_____. Repeatability Stability B) A) Sensitivity C) Accuracy D) 16) Change in output of sensor with change in input is Threshold A) B) Slew rate D) None of the mentioned

17) _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.

A) Stability B) Resolution

C)

Sensitivity

C) Error Impedance D)

- 18) _____ is the time required for an output value to settle within the specified error level.
 - A) Response Time B) Rise Time
 - C) Settling Time D) None of the above
- 19) One of the following search engine is exclusively meant for scientific information.
 - A) Google B) Yahoo
 - C) SCIRUS D) AltaVista
- 20) What is data collection?
 - A) Collecting the research question and objectives together
 - B) Gathering the information (data) which will help you address your research question
 - C) Reviewing the literature review
 - D) Outlining how you will gather the information for your research question
- 21) Low accuracy measurements from a high precision instrument are normally caused by
 - A) Bias in the measurement B) Human errors
 - C) Instrumental defect D) Low temperature
- 22) Which one of the following is an advantage of an excel array formula?
 - A) It ensures all formulas in the range are identical
 - B) A group of data can be given a convenient name
 - C) You can easily overwrite the cell formulas
 - D) They are quick to type

- 23) Which of the following may be a primary source of information for a researcher?
 - A) Encyclopedia of Educational Research
 - B) A research review article
 - C) Research paper in a professional journal
 - D) An abstract of a research study
- 24) The coefficient of correlation lies from
 - A) + 1 to -1 B) 0 to -1
 - C) -1 to 0 D) +1 to 0
- 25) Applications that work with cloud computing that have low margins and usually low risk are:
 - A) high touch B) low touch
 - C) moderate touch D) all of the mentioned

26) Distortion is one of the quality characteristics of _____.

- A) radio B) audio
- C) microphone D) condenser
- 27) Frequency range for telephone speech is
 - A) 16 Hz to 20 kHz B) 100 Hz to 1000 Hz
 - C) 1500 Hz to 2500 Hz D) 300 Hz to 3400 Hz

- 28) Enclosure is type of _____
 - A) baffle in loudspeaker
 - B) baffle in microphone
 - C) baffle in loudspeaker and microphone
 - D) none of these
- 29) For good conductors such as metals $\sigma/\omega\epsilon$ is _____ over the entire radio frequency spectrum.
 - A) very much greater than unity B) very much less than unity
 - C) 0 D) 1
- 30) In TEM mode electric and magnetic field vectors are _____.
 - A) perpendicular to each other and perpendicular to the direction of propagation
 - B) parallel to each other and parallel to the direction of propagation
 - C) perpendicular to each other and parallel to the direction of propagation
 - D) parallel to each other and perpendicular to the direction of propagation
- 31) CISC stands for
 - A) Complex Instruction Set Processor
 - B) Combine Instruction Set Processor
 - C) Compile Input Set Processor
 - D) Complex Input Set Processor
- 32) Virtual memory is a _____.
 - A) large physical memory
 - C) a small part of ROM area
- B) a small part of RAM area
- D) external hard drive
- -7-

33) In induction motor, the currents in main and auxiliary windings are

- A) in phase B) rotate
- C) out of phase D) not used

34) The rotational speed of a given stepper motor is determined by the ______.
A) magnitude of stator current
B) step pulse frequency
C) shaft load
D) polarity of stator current

35) The sequence of operations in which PCM is done is

- A) Sampling, quantizing, encoding B) Quantizing, encoding, sampling
- C) Quantizing, sampling, encoding D) Sampling, encoding, quantizing

36) Coherent detection of binary ASK signal requires

- A) Phase synchronization B) Timing synchronization
- C) Amplitude synchronization D) Both A and B

37) For homogeneous dielectric medium the propagation delay time per unit length is _____.

- A) $T_d = \mu / \varepsilon$ B) $T_d = \sqrt{\mu / \varepsilon}$
- C) $T_d = \sqrt{\mu \varepsilon}$ D) $T_d = (\mu / \varepsilon)^2$

38) The ______ is one of the force operated indicators.

- A) neon glow tube B) gold-leaf electroscope
- C) thermistor D) crystal rectifier

39) The McMurray half-bridge inverter is also called as ______ inverter.

- A) Auxiliary-commutated B) Auxiliary communicated
- C) Auxiliary connected D) Auxiliary converted

40) The Buck-Boost Regulator is also called as ______ regulator.

- A) step up-step down B) simple
- C) inverting D) non-inverting
- 41) Population inversion means to disturb the state of thermal equilibrium of closed system by an external energy supply to achieve an electron ratio ______.
 - A) $N_2/N_1 > 1$ B) $N_2/N_1 < 1$
 - C) $N_2/N_1 = 1$ D) $N_1/N_2 = 1$
- 42) Extrinsic losses occur due to _____.
 - A) Alignments B) Misalignments
 - C) Disalignments D) None of these

				NI/P EINI = 2
43)	Aut	omatic toaster is a example of		
	A)	open loop control system	B)	closed loop control system
	C)	adaptive control	D)	feed forward control
44)	technique gives quick transient and stability response.			and stability response.
	A)	Bode plot	B)	Root Locus
	C)	Polar plots	D)	Nyquist plot
45)	Wh	Which of the following is reliable communication?		
	A)	ТСР	B)	IP
	C)	UPD	D)	All of them
46)	Which of the following protocol is/are defined in Transport layer?			ed in Transport layer?
	A)	FTP	B)	ТСР
	C)	UDP	D)	B&C
47)	ΑL	TI system is said to be stable when		·
	A)	all the poles lie inside the unit circle	e	
	B)	one of the pole lies outside the unit	t circ	le
	C)	C) all the poles lie outside the unit circle		
	D)	none of the above		

48)	Radix-2 FFT algorithm requires _	number of stages to compute
	8 point DFT.	

A)	1	B)	4
C)	3	D)	8

49) A 5 mA changes in Zener current produces a 50 mV change in Zener voltage. What is the Zener impedance?

A)	1	B)	100

- C) 10 D) 5
- 50) In colpitt oscillator how many inductors are there in the tank circuit?
 - A) 1 B) 2
 - C) 3 D) 0



Rough Work