Seat No.	

M.Phil./Ph.D. Entrance Examination, September - 2022
ELECTRONICS (For M.Sc. Students)
Sub. Code: 58799

Day and Date : Friday, 23- 09 - 2022   **Total Marks : 100**
Time : 1.00 p.m. to 3.00 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 pint 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

P.T.O.

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) HAK   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

   C) decreases   D) becomes very high

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_____.

   A) Stability   B) Repeatability

   C) Accuracy   D) Sensitivity

16) Change in output of sensor with change in input is

   A) Threshold   B) Slew rate

   C) Sensitivity   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) Error   D) Impedance

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 2500Hz   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 $\sigma/\omega\varepsilon$ 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

    B)   a small part of RAM area

    C)   a small part of ROM area

    D)   external hard drive

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

43) Automatic toaster is a example of _____ system.

   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.

   A) Bode plot 　　　　　　　　 B) Root Locus

   C) Polar plots 　　　　　　　　 D) Nyquist plot

45) Which of the following is reliable communication?

   A) TCP 　　　　　　　　 B) IP

   C) UPD 　　　　　　　　 D) All of them

46) Which of the following protocol is/are defined in Transport layer?

A) FTP   B) TCP

C) UDP   D) (B) & (C)

47) A LTI system is said to be stable when _____

A) all the poles lie inside the unit circle

B) one of the pole lies outside the unit circle

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

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Rough Work