Seat No.	

M.Phil. / Ph.D. Entrance Examination, October - 2021
ELECTRONICS (For M.Sc. Students)

Day and Date : Wednesday, 27 - 10 - 2021   **Total Marks : 100**
Time : 10.00 a.m. to 12.00 noon

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) Mean, Median and Mode are :

(A) Measures of deviation

(B) Ways of sampling

(C) Measures of control tendency

(D) None of the above

2) Research is

(A) Searching again and again

(B) Finding solution to any problem

(C) Working in a scientific way to search for truth of any problem

(D) None of the above

P.T.O.

3) Which of the following is the first step in starting the research process?

(A) Searching sources of information to locate problem

(B) Survey of related literature

(C) Identification of problem

(D) Searching for solutions to the problem

4) A common test in research demands much priority on

(A) Reliability (B) Usability

(C) Objectivity (D) All of the above

5) 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

6) A reasoning where we start with certain particular statements and conclude with a universal statement is called

(A) Deductive Reasoning

(B) Inductive Reasoning

(C) Abnormal Reasoning

(D) Transcendental Reasoning

7) Attributes of objects, events or things which can be measured are called

(A) qualitative measure (B) data

(C) variables (D) none of the above

8) 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

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) Questionnaire is a :

(A) Research method
(B) Measurement technique
(C) Tool for data collection
(D) Data analysis technique

12) Which of the following is not covered under Intellectual Property Rights?

(A) Copyrights
(B) Patents
(C) Trade Marks
(D) Thesaurus

13) _____ is not a characteristic of an ideal transducer.

(A) High dynamic range
(B) High linearity
(C) High repeatability
(D) High noise

14) _____ is an active transducer.

(A) Strain gauge   (B) Thermistor

(C) LVDT   (D) Thermocouple

15) Piezo-electric transducer is used to measure _____

(A) Velocity   (B) Displacement

(C) Force   (D) Sound

16) How many coils are required to make LVDT?

(A) 4   (B) 6

(C) 3   (D) 2

17) LVTD is a _____ transducer.

(A) displacement   (B) photoelectric

(C) thermal   (D) moisture

18) Voltmeter has ____ Input impedance.

(A) high   (B) low

(C) medium   (D) zero

19) Which of the following command generates the transfer function of a system?

(A) tf()   (B) tf[]

(C) tf{}   (D) No such command

20) To add comments in MATLAB, use _____.

(A) //   (B) /*

(C) %   (D) --

21) To display comments of M-file in MATLAB, we use _____.

(A) echo on   (B) comment on

(C) show %   (D) cannot be displayed

22) The function to close the windows containing graphs generated from MATLAB is _____

(A) close all   (B) close graphs

(C) delete graphs   (D) end all

23) Which of the following MATLAB expression gives –1.

(A) cos(180)   (B) cosd(pi)

(C) sin(-pi/2)   (D) None of the above

24) A small signal analysis in frequency domain is termed as

(A) DC analysis   (B) AC analysis

(C) DC transfer curve analysis   (D) Noise analysis

25) What is another name for the 'scientific method'?

(A) Trial and Error   (B) Theoretical-empirical method

(C) Deducto-hypothetical method   (D) Hypothetico-deductive method

26) Impedance of a ribbon type microphone is _____

(A) less than 1 Ω   (B) 100 Ω-1000 Ω

(C) 1 m Ω   (D) 100 m Ω

27) Stereo-phony is the

(A) crystal-sound   (B) video-sound

(C) system sound   (D) solid-sound

28) A rigid flat material used to extend the edges of a loudspeaker cone is called _____

(A) woofer   (B) tweeter

(C) baffle   (D) squawker

29) _____ is the dominant mode in rectangular waveguide.

(A) TE_{11} (B) TM_{31}

(C) TE_{10} (D) TM_{21}

30) For flat line VSWR = _____

(A) 0   (B) ∞

(C) 1   (D) very large

31) RISC stands for

(A) Real time Set computer

(B) Reduced input set computer

(C) Reduced Instruction Set Computer

(D) Rate instruction set computer

32) Cache memory is in between

(A) RAM and ROM

(B) CPU and Hard disc

(C) CPU and RAM

(D) CPU and co-processors

33) No-load speed of which of the following motor will be highest?

(A) shunt motor

(B) series motor

(C) commutative compound motor

(D) differentiate compound motor

34) The shape of $I_{T1} + I_{T2}$ current of single phase series full converter is _____wave.

(A) Square

(B) Quasi square

(C) Ramp

(D) Saw tooth

35) BPSK system modulates at the rate of

(A) 1 bit/ symbol

(B) 2 bit/ symbol

(C) 4 bit/ symbol

(D) None of the above

36) The binary waveform used to generate BPSK signal is encoded in

(A) Bipolar NRZ format

(B) Manchester coding

(C) Differential coding

(D) None of the above

37) _____ mW is equivalent to 0 dbm.

(A) 1

(B) 10

(C) 100

(D) 0

38) In thick film technology, from the point of view of strength and stability of soldered joints _____ is preferable in paste for conductors.

(A) barium titanate

(B) palladium-silver

(C) palladium-gold

(D) barium titanate and glass frit

39) The average output voltage (Vo) of step-up chopper is _____ input voltage (Vs).

(A) less than

(B) greater than

(C) equal to

(D) less than or equal to

40) In modified sinusoidal PWM, the carrier wave is applied during first and last ____interval.

(A) 60°

(B) 180°

(C) 90°

(D) 120°

41) In 1880 Alexander Graham Bell invented a light communication system, the photo phone. He used _____

(A) Sunlight reflected from a thin voice modulated mirror to carry conversation

(B) Sunlight transmitted from a thin voice modulated mirror to carry conversation

(C) Sunlight reflected from a thin voice demodulated mirror to carry conversation

(D) Sunlight transmitted from a thin voice demodulated mirror to carry conversation

42) Numerical aperture is depending on _____.

(A) Radius of core

(B) Refractive index

(C) Radius of cladding

(D) Cut-off wavelength

43) In Open-loop control systems are _____ stable

(A) less   (B) more

(C) marginally   (D) unstable

44) Initial response of the control system is called as

(A) stable response

(B) transient response

(C) study state response

(D) dynamic response

45) The facilities available in the internet are

(i) electronic mail

(ii) remote login

(iii) file transfer

(iv) word processing

(A) i, ii   (B) i, ii, iii

(C) i, ii, iv   (D) ii, iii and iv

46) What is the size of Source and Destination IP address in IP header?

(A) 4 bits

(B) 8 bits

(C) 16 bits

(D) 32 bits

47) $x(t) = 2\cos 1000\pi t + \sin 4000\pi t$ then the Nyquist rate for this signal is _____

(A) 2 KHz

(B) 4 KHz

(C) 8 KHz

(D) 1 KHz

48) If $x(n) = u(n)$ then X(Z) converges to _____.

(A) $X(Z) = \dfrac{1}{1-Z}$

(B) $X(Z) = \dfrac{1}{1+Z^{-1}}$

(C) $X(Z) = \dfrac{1}{1-Z^{-1}}$

(D) $X(Z) = \dfrac{1}{1+Z}$

49) Attenuation of Wein bridge oscillator is equals to

(A) 3

(B) 1/3

(C) 1/29

(D) None of the above

50) The range of frequency over which the PLL can maintain lock with the incoming signal is called

(A) Capture range

(B) Lock range

(C) Loop range

(D) None of the above

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Rough Work

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