

M.Phil./Ph.D. Entrance Examination, August - 2018
ELECTRONICS**Day and Date : Friday, 10 - 08 - 2018****Total Marks : 100****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) What are the important features of a table or diagram included in a research report?
 - A) That it should be readily understood and helpful.
 - B) That it is easy to make.
 - C) That it is created using SPSS.
 - D) That it should be colourful.
- 2) Why are the references included in a research project?
 - A) It is courtesy to the authors of the works that you have read.
 - B) To impress lecturers.
 - C) To fully identify the source of information and ideas discussed in the report so that others may check for themselves.
 - D) To keep a record of everything that you have read in writing the report.
- 3) The ideal model for a research report is:
 - A) The journal article standard format.
 - B) A magazine article.
 - C) What other students do.
 - D) The essay format.
- 4) Of all of the steps in the research process, the one that typically takes the most time is
 - A) Formulating the problem.
 - B) Developing a hypothesis.
 - C) Selecting a research method.
 - D) Data collection.

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- 5) The concepts in a hypothesis are stated as _____.
A) Ideas B) Indices
C) Theories D) Variables

6) In order for a variable to be measured, a researcher must provide a (n) _____.
A) Scale B) Theory
C) Operational definition D) Quantitative theorem

7) When a number of researchers use the same operational definition to measure a variable and achieve the same results, the measure is said to be _____.
A) Factual B) Instrumental
C) Reliable D) Internally consistent

8) _____ involves the transformation of raw data into numbers to make it suitable for further analysis.
A) Classification B) Enumeration
C) Factoring D) Coding

9) A mean, median and mode are all examples of _____.
A) Measures of central tendency B) Measures of enumeration
C) Measures of variation D) Measures of correlation

10) Which of the following was not identified as one of the four conditions that must be met before a researcher can say that an independent variable or variables caused the change in the dependent variable?
A) Theory B) Internal consistency
C) Elimination of spuriousness D) Time order

11) A researcher was able to prove that, on average, as age increases, eyesight declines. In research terminology this is called a (n) _____.
A) Observation B) Variation
C) Measure of central tendency D) correlation

12) What research method is popular because it is comparatively inexpensive and wellsuited to studying large numbers of people?
A) Surveys B) Content analysis
C) Experiments D) Interviews

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- 28) The dominant mode in a particular guide is the mode having the _____.
A) Lowest cutoff frequency B) Highest cutoff frequency
C) Lowest cutoff wavelength D) Both (A) and (C)
- 29) For TE_{10} wave in rectangular waveguide the electric field at the centre of the width (a) will be _____.
A) Same as that at edges B) Zero
C) Maximum D) Smaller than that at edges
- 30) The Sun micro systems processors has _____ architecture.
A) RISC B) ISA
C) ANNA D) CISC
- 31) The important feature of the VLIW is _____.
A) Low power consumption B) Cost effectiveness
C) Performance D) Reduced dimensions
- 32) A useful property of the unit impulse $\delta(t)$ is that
A) $\delta(at) = a\delta(t)$ B) $\delta(at) = \delta(t)$
C) $\delta(at) = (1/a)\delta(t)$ D) $\delta(at) = [\delta(t)]^a$
- 33) The Fourier transform of the exponential signal $e^{j\omega_0 t}$ is
A) A constant B) A rectangular gate
C) An impulse D) A series of impulses.
- 34) In Delta modulation,
A) One bit per sample is transmitted
B) All the coded bits used for sampling are transmitted
C) The step size is fixed
D) Both (A) and (C) are correct
- 35) The digital modulation technique in which the step size is varied according to the variation in the slope of the input is called
A) Delta modulation B) PCM
C) Adaptive delta modulation D) PAM
- 36) In thick film technology, for insulating layers _____ is employed when a high dielectric constant is required.
A) Platinum gold
B) Fine gold
C) Mixture of barium titanate and glass frit
D) Both (A) and (C)

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- 37) In H-plane sectoral horn _____.
A) $E\varphi \neq 0$ B) $H_y \neq 0$
C) $E\varphi \neq 0$ D) $E\varphi = E\varphi = 0, H_y = 0$
- 38) A SCR is rated at 75 A peak, 20 A average. The greatest possible delay in the trigger angle if the dc is at rated value is
A) 47.5° B) 30° to 45°
C) 74.5° D) 137°
- 39) The RMS output Voltage of Single phase half bridge inverter is.....
A) $V_s/2$ B) $2V_s$
C) V_s D) $V_s/3$
- 40) Spectral width is one of the important factors for _____.
A) Material dispersion B) Polarization
C) Attenuation D) Absorption
- 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) In second order Control System the response is damped oscillatory if damping factor _____.
A) $\xi < 1$ B) $\xi = 1$
C) $\xi > 1$ D) $\xi < 0$
- 43) In the Bode plots frequency scale is _____.
A) Parabolic B) Exponential
C) Logarithmic D) Linear
- 44) Frames from one LAN can be transmitted to another LAN via _____ device.
A) Router B) Bridge
C) Repeater D) Modem
- 45) Data communication system within a building or campus is
A) LAN B) WAN
C) MAN D) None of the mentioned

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- 46) For two sided finite duration sequence ROC is _____.
A) Entire Z-plane
B) Entire Z-plane except $|Z|=\infty$
C) Entire Z-plane except $|Z|=0$ and $|Z|=\infty$
D) Entire Z-plane except $|Z|=0$

47) DFT of $\delta(n)$ is _____.
A) < 1 B) > 1
C) $= 1$ D) $= 0$

48) _____ of the following voltage regulator is preferred for providing large values of load current
A) Zener diode shunt regulator
B) Transistor series regulator
C) Transistor shunt regulator
D) None of the above

49) Using IC 555 a monostable multivibrator has $R = 120 \text{ K}\Omega$ and the time delay $T = 1000\text{ms}$ the value of C is _____.
A) $0.9 \mu\text{F}$ B) $1.32 \mu\text{F}$
C) $7.5 \mu\text{F}$ D) $2.49 \mu\text{F}$

50) Astable multivibrator operating at 150Hz has a discharge time of 2.5m the duty cycle of the circuit is = _____.
A) 50% B) 75%
C) 95.99% D) 37.5%



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Rough Work