

Total No. of Questions: 50

Application No.....



Faculty of Engineering
Ph.D Entrance Test July-2018
Electronics Engineering

Duration: 2 Hrs.

Maximum Marks: 100

1. Name of the Candidate:-----
(In Capital Letter)
2. Enrollment No:-----
3. Mobile No:-----
4. Highest Qualification:-----
5. Area of Specialization:-----
6. Date of the Test:-----

Instruction

1. All questions are compulsory.
2. Each question carries 2 marks.
3. Use ball point pen to answer the question.
4. Scientific Calculators are allowed.
5. No mobile phone is allowed in the examination hall.
6. Any kind of canvassing or use of unfair means in the examination is liable to cancellation of candidature.
7. Any overwriting in the answer will not be considered for evaluation.

Signature of the Candidate:

Signature of the Invigilator

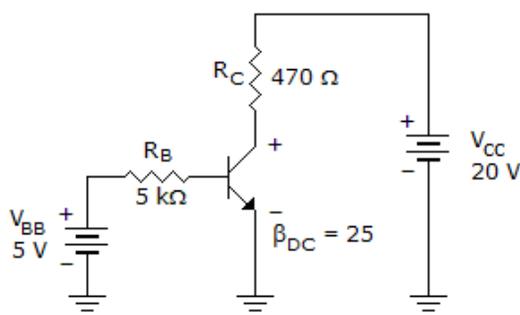
Marks obtained: -----

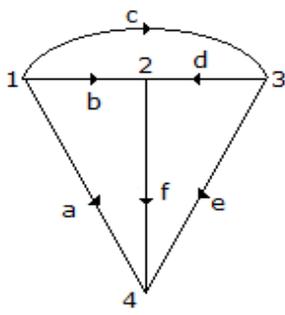
Signature of the Evaluator

Recommendation of the UPAC

(Rough Work)

(Fill the answer in corresponding empty column.)

Q.1	One eV is equal to _____ J. (a) 6.02×10^{23} (b) 1.6×10^{-19} (c) 6.25×10^{18} (d) 1.66×10^{-24}	
Q.2	Which capacitance dominates in the reverse-bias region of a P-N Diode? (a) Depletion (b) Conversion (c) Diffusion (d) None of these	
Q.3	Which of the following ratings is true? (a) Si diodes have higher PIV and narrower temperature ranges than Ge diodes. (b) Si diodes have higher PIV and wider temperature ranges than Ge diodes. (c) Si diodes have lower PIV and narrower temperature ranges than Ge diodes. (d) Si diodes have lower PIV and wider temperature ranges than Ge diodes.	
Q.4	For normal operation of a pnp BJT, the base must be _____ with respect to the emitter and _____ with respect to the collector. (a) Positive, negative (b) Positive, positive (c) Negative, positive (d) Negative, negative	
Q.5	Refer to this figure. The value of V_{CE} is:  <p>(a) 9.9 V (b) 9.2 V (c) 0.7 V (d) 19.3 V</p>	
Q.6	Digital representations of numerical values of quantities may BEST be described as having characteristics: (a) That are difficult to interpret because they are continuously changing. (b) That vary constantly over a continuous range of values. (c) That vary in constant and direct proportion to the values they represent. (d) That vary in discrete steps in proportion to the values they represent.	
Q.7	If a 3-input NOR gate has eight input possibilities, how many of those possibilities will result in a HIGH output? (a) 1 (b) 2 (c) 7 (d) 8	
Q.8	Convert hexadecimal value 16 to decimal. (a) 22 ₁₀ (b) 16 ₁₀ (c) 10 ₁₀ (d) 20 ₁₀	
Q.9	An AND gate with schematic "bubbles" on its inputs performs the same function as a(n) _____ gate. (a) NOT (b) OR (c) NOR (d) NAND	
Q.10	Propagation delay time, t_{PLH} , is measured from the _____. (a) Triggering edge of the clock pulse to the LOW-to-HIGH transition of the output (b) Triggering edge of the clock pulse to the HIGH-to-LOW transition of the output (c) Preset input to the LOW-to-HIGH transition of the output (d) Clear input to the HIGH-to-LOW transition of the output	

Q.11	A series RLC circuit has a resonant frequency of 1000 Hz. The maximum voltage across C is likely to occur at a frequency of about (a) 1000 Hz (b) 2000 Hz (c) 1025 Hz (d) 975 Hz	
Q.12	A network has two branches in parallel. One branch contains impedance Z_1 and the other branch has impedance Z_2 . If it is fed from an ac voltage V of frequency f , the current through Z_1 depends, on (a) V, Z_1, Z_2 (b) V, Z_1 (c) Z_1, Z_2 (d) V, f, Z_1, Z_2	
Q.13	It two voltages are $v_1 = 100 \sin (\omega t + 30^\circ)$ and $v_2 = \cos \omega t$ then (a) v_1 is leading v_2 by 30° (b) v_2 is leading v_1 by 30° (c) v_2 is leading v_1 by 60° (d) v_1 is leading v_2 by 60°	
Q.14	The superposition theorem is applicable to (a) Linear, non-linear and time variant systems (b) Linear and non-linear resistors only (c) Linear systems only (d) None of these	
Q.15	For graph of figure, one set of fundamental cutsets would be  (a) abc, cde, afe (b) $afde, afe, abdc$ (c) $cbfe, afe, bdf$ (d) $cbd, adbe, cde$	
Q.16	The electric field strength at a given point is equals to: (a) The charge gradient at that point (b) The negative of potential gradient at that point (c) The potential gradient at that point (d) None of these	
Q.17	Poynting vector gives : (a) Direction and rate of energy flow (b) Direction of polarization of electromagnetic wave (c) The electric field intensity (d) None of these	
Q.18	Yagi-Uda Antenna does not have: (a) High Bandwidth (b) High Gain (c) Parasitic Director (d) Parasitic Reflector	
Q.19	When a particular mode is excited in a waveguide there appears an extra electric component in the direction of propagation. The resulting mode is: (a) Longitudinal electric (b) Transverse electromagnetic (c) Transverse magnetic (d) Transverse electric	

Q.20	Short circuited stubs are preferred over open circuited stubs because the latter: (a) Have a tendency to radiate (b) Are very difficult to design (c) Can not be placed at a convenient point (d) None of these	
Q.21	Laplace transform $F(s)$ of a function $f(t)$ is given by $F(s)=10(s+7)/s(s+1)(s+10)$. The initial and final values of $f(t)$ will be respectively: (a) Zero and 7 (b) Zero and 10 (c) 10 and zero (d) 70 and 80	
Q.22	Signal other than the reference input that tends to affect the output variable is known as : (a) Control Input (b) Disturbance (c) Command (d) None of these	
Q.23	System with gain margin equal to unity and phase margin equal to zero is a: (a) Stable System (b) Unstable System (c) Marginally Stable System (d) Can not be predicted	
Q.24	Which of the following improves steady state accuracy : (a) Differentiator (b) Integrator (c) Phase Lead Compensator (d) None of these	
Q.25	The open loop transfer system of a unity feedback system is given by $G(s)=K/(s+1)$. The steady state error of the system due to a unit step input is: (a) Zero (b) K (c) $1/(1+K)$ (d) Infinite	
Q.26	"Internal validity" refers to: (a) Whether or not there is really a causal relationship between two variables (b) Whether or not the findings are relevant to the participants' everyday lives (c) The degree to which the researcher feels that this was a worthwhile project (d) How accurately the measurements represent underlying concepts	
Q.27	In an experimental design, the dependent variable is: (a) The one that is not manipulated and in which any changes are observed (b) The one that is manipulated in order to observe any effects on the other (c) A measure of the extent to which personal values affect research (d) An ambiguous concept whose meaning depends on how it is defined	
Q.28	A deductive theory is one that: (a) Allows theory to emerge out of the data (b) Involves testing an explicitly defined hypothesis (c) Allows for findings to feed back into the stock of knowledge (d) Uses qualitative methods whenever possible	
Q.29	Which of the following is <i>not</i> a data-collection method? (a) Research questions (b) Unstructured interviewing (c) Postal survey questionnaires (d) Participant observation	
Q.30	An important practical issue to consider when designing a research project is: (a) Which theoretical perspective you find most interesting (b) Whether or not you have time to retille the bathroom first (c) How much time and money you have to conduct the research (d) Which colour of ring binder to present your work in	
Q.31	Which of the following should be included in a research proposal? (a) Your academic status and experience	

Q.41	Concepts are	(a) Metaphor	(b) Simile	(c) Symbols	(d) Models
Q.42	A Hypothesis which develops while planning the research is	(a) Null Hypothesis	(b) Working Hypothesis	(c) Relational Hypothesis	(d) Descriptive Hypothesis
Q.43	A Hypothesis must be	(a) Diffuse	(b) Specific	(c) Slow	(d) Speedy
Q.44	A short summary of Technical Report is called	(a) Article	(b) Research Abstract	(c) Publication	(d) Guide
Q.45	Reliability is mostly a matter of _____, while validity is mostly about _____	(a) Consistency, accuracy	(b) Accuracy, consistency	(c) Similarity, dissimilarity	(d) Similarity, consistency
Q.46	The introduction chapter is usually _____ % of the total word limit of the dissertation	(a) 30	(b) 40	(c) 25	(d) 10
Q.47	Type-I Error occurs if _____	(a) The null hypothesis is rejected even though it is true	(b) The null hypothesis is accepted even though it is false	(c) Both the null hypothesis as well as alternative hypothesis are rejected	(d) None of these
Q.48	If X is Adiscrete random variable and f(x) is the probability of X, then the expected value of this random variable is equal to:	(a) $\sum f(x)$	(b) $\sum [x+f(x)]$	(c) $\sum f(x)+x$	(d) $\sum xf(x)$
Q.49	The essence of both basic and applied research lies in	(a) Market orientation	(b) Scientific method	(c) Performance monitoring research	(d) Costing methods
Q.50	“Empirically verifiable observation” is	(a) Theory	(b) Value	(c) Fact	(d) Statement