



PhD ENTRANCE EXAM RESULT , VMSBUTU

Answer Key for Electronics and Communication Engineering
Branch

Question	Options
1 : If AIRLINE is written as ENILRIA7, then RAILWAY will be written as	1) YAWILAR8 2) YAWLIAR7 3) YAWILAR7 4) YAWLIAR8
2 : Which number is wrong in the series 2, 6, 15, 31, 56, 93?	1) 31 2) 56 3) 93 4) 6
3 : If PINK is coded as 1691411, then RED will be coded as	1) 1963 2) 1853 3) 1954 4) 1854
4 : Statement 1: A is bigger than B but shorter than C; Statement 2: D is smaller than C and bigger than A; Statement 3: B is greater than D; If statement 1 and statement 2 are true, statement 3 will be	1) "TRUE" 2) "FALSE" 3) uncertain 4) none
5 : Arrange the following words in a meaningful sequence : 1-sun, 2- rain, 3-child, 4-rainbow,5-happy	1) 2, 1, 4, 3, 5 2) 3, 2, 1, 4, 5 3) 2, 1, 3, 4, 5 4) 4, 5, 1, 3, 2
6 : What is the probability of getting two tails when two coins are tossed?	1) 0.3333333333333333 2) 0.166666666666667 3) 0.5 4) 0.25

Question	Options
7 : A man covers a distance of 110 km between two cities in 10 hours. He travelled partly on foot at 9 km/hr and partly on a bicycle at 15 km/hr. Find the distance travelled on foot.	1) 92 2) 94 3) 60 4) 80
8 : Vikas and Mohan working together can complete a work in 6 days. If Vikas alone completes the same work in 10 days, in how many days Mohan alone can complete the same work?	1) 13 2) 14 3) 15 4) 16
9 : The HCF of $\frac{2}{3}$, $\frac{8}{9}$, $\frac{64}{81}$ and $\frac{10}{27}$ is	1) 0.666666666666667 2) $\frac{160}{3}$ 3) $\frac{2}{81}$ 4) $\frac{160}{81}$
10 : A 60 liter mixture of milk and water contains 10% water. How much water must be added to make water 20% in the mixture?	1) 8 liters 2) 7.5 liters 3) 7 liters 4) 6.5 liters
11 : Who Invented the 3-D printer?	1) Nick Holonyak 2) Elias Howe 3) Chuck Hull 4) Christiaan Huygens
12 : Which Veda depicts the information about the most ancient Vedic age culture?	1) Atharvaveda 2) Samaveda 3) Yajurveda 4) Rig Veda
13 : The first pico satellite of India is-	1) GSAT-4 2) ANUSAT 3) INSAT 4) STUDSAT
14 : Which of the following is known as the Diamond City of India?	1) Aurangabad 2) Jaipur 3) Panna 4) Jhiria

Question	Options
15 : In which year Forest Conservation Act was passed?	<p>1) 1980</p> <p>2) 1988</p> <p>3) 1986</p> <p>4) 1990</p>
16 : What is a hypothesis in research?	<p>1) A conclusion drawn from data analysis</p> <p>2) A summary of research findings</p> <p>3) A measurement of data accuracy</p> <p>4) A statement of predicted relationship between variables</p>
17 : What is the purpose of a literature review in research?	<p>1) To analyze data</p> <p>2) To summarize research findings</p> <p>3) To collect primary data</p> <p>4) To identify the research gaps</p>
18 : What is a dependent variable in research?	<p>1) The variable that is manipulated by the researcher</p> <p>2) The variable that remains constant throughout the research</p> <p>3) The variable that is measured and observed</p> <p>4) The variable that is not relevant to the research question</p>
19 : What is a research design?	<p>1) A plan for data analysis</p> <p>2) A method for data collection</p> <p>3) A framework for conducting research</p> <p>4) A statistical technique</p>
20 : What is the appropriate statistical analysis for comparing means between two groups?	<p>1) T-test</p> <p>2) Chi-squared test</p> <p>3) Analysis of variance (ANOVA)</p> <p>4) Regression analysis</p>

Question	Options
21 : An excitation is applied to a system at $t = T$ and its response is zero for $-\infty < t < T$. Such a system is	1) non-causal system 2) stable system 3) causal system 4) unstable system
22 : In a series RLC high Q circuit, the current peaks at a frequency	1) equal to the resonant frequency 2) greater than the resonant frequency 3) less than the resonant frequency 4) none of the above
23 : Two two-port networks are connected in cascade. The combination is to be represented as a single two-port network. The parameters of the network are obtained by multiplying the individual	1) z parameter matrix 2) h parameter matrix 3) y parameter matrix 4) ABCD parameter matrix
24 : For a two-port network to be reciprocal	1) $Z_{11} = Z_{22}$ 2) $y_{21} = -y_{12}$ 3) $h_{21} = -h_{12}$ 4) $AD - BC = 0$
25 : A network contains linear resistors and ideal voltage sources. If the values of all the resistors are doubled, then the voltage across each resistor is	1) halved 2) doubled 3) increased by four times 4) not changed
26 : The steady state error of a stable type 0 unity feedback system for a unit step function is	1) 0 2) $1/(1+k_p)$ 3) ? 4) $1/k_p$
27 : A linear discrete-time system has the characteristic equation, $z^3 + 0.81z = 0$. The system is	1) stable 2) marginally stable 3) unstable 4) stability cannot be assessed from the given information

Question	Options
28 : If the open loop transfer function is a ratio of a numerator polynomial of degree m and a denominator polynomial of degree n, then the integer (n - m) represents the number of	1) breakaway points 2) unstable poles 3) separate root loci 4) asymptotes
29 : Signal flow graph is used to find	1) stability of a system 2) controllability of the system 3) transfer function of the system 4) poles of the system
30 : The final value theorem is used to find the	1) steady state value of the system output 2) initial value of the system output 3) transient behaviour of the system output 4) none of these
31 : The number of Boolean functions that can be generated by n variable is equal to	1) 2^n 2) 2^{2n} 3) 2^{n-1} 4) 2^{2n-1}
32 : The output of a logic gate is 1 when all its inputs are at logic 0. Then the gate is either	1) a NAND gate or an EX-OR gate 2) a NOR gate or an EX-NO gate 3) an OR gate or an EX-NOR gate 4) an AND gate or an EX-OR gate
33 : A PLA can be used	1) as a microprocessor 2) as a dynamic memory 3) to realise a sequential logic 4) to realised a combinational logic

Question	Options
34 : A dynamic RAM consists of	1) 6 transistors 2) 2 transistors and 2 capacitors 3) 1 transistor and 1 capacitor 4) 2 capacitors only
35 : A switch-tail ring counter is made by using a single D flip-flop. The resulting circuit is a	1) SR flip-flop 2) JK flip-flop 3) D flip-flop 4) T flip-flop
36 : In a uniformly doped abrupt p-n junction, the doping level of the n-side is four times the doping level of the p-side. The ratio of the depletion layer widths is	1) 0.25 2) 0.5 3) 1 4) 2
37 : In a forward biased photo diode with increase in incident light intensity, the diode current	1) increases 2) remains constant 3) decreases 4) remaining constant, the voltage drop across the diode increases
38 : The pinch off voltage of a JFET is 5.0 volts. Its cut off voltage is	1) (5.0)0.5 V 2) 2.5 V 3) 5.0 V 4) (5.0)1.5 V
39 : An Infrared LED is usually fabricated from	1) Ge 2) Si 3) GaAs 4) GaAsP

Question	Options
40 : In a multi-stage R-C coupled amplifier the coupling capacitor	<p>1) limits the low frequency response</p> <p>2) limits the high frequency response</p> <p>3) does not affect the response</p> <p>4) blocks the d.c. components without affecting the frequency response</p>
41 : A 4 GHz carrier is DSB SC modulated by a low pass message signal with maximum frequency of 2 MHz. The resultant signal is to be ideally sampled. The minimum frequency of the sampling in train should be	<p>1) 4 MHz</p> <p>2) 8 MHz</p> <p>3) 8 GHz</p> <p>4) 8.004 GHz</p>
42 : The maximum power efficiency of an AM modulator is	<p>1) 0.25</p> <p>2) 0.5</p> <p>3) 0.75</p> <p>4) 1</p>
43 : Increased pulse-width in the flat-top sampling leads to	<p>1) attenuation of high frequencies in reproduction</p> <p>2) attenuation of low frequencies in reproduction</p> <p>3) greater aliasing errors in reproduction</p> <p>4) no harmful effects in reproduction</p>
44 : A PLL can be used to demodulate	<p>1) PAM signals</p> <p>2) PCM signals</p> <p>3) FM signals</p> <p>4) DSB SC signals</p>
45 : A PAM signal can be detected by using	<p>1) an ADC</p> <p>2) an integrator</p> <p>3) a band pass filter</p> <p>4) a high pass filter</p>

Question	Options
46 : The intrinsic impedance of a lossy dielectric medium is given by	1) $j\eta_0/\eta$ 2) $j\eta/\eta_0$ 3) $\eta_0[(j\eta)/(\eta + j\eta_0)]$ 4) $\eta(\eta/\eta_0)$
47 : An antenna when radiating has a highly directional radiation pattern. When the antenna is receiving, its radiation pattern is	1) more directive 2) less directive 3) is the same 4) exhibits no directivity at all
48 : A 1 km microwave link uses two antennas each having 30 dB gain. If the power transmitted by one antenna is 1 W at 3 GHz, the power received by the other antenna is approximately	1) 98.6 μ W 2) 76.8 μ W 3) 63.4 μ W 4) 55.2 μ W
49 : Some unknown material has a conductivity of 106 mho/m and a permeability of 4×10^{-7} H/m. The skin depth for the material at 1GHz is	1) 15.9 μ m 2) 20.9 μ m 3) 25.9 μ m 4) 30.9 μ m
50 : A rectangular air-filled waveguide has cross section of 4 cm x 10 cm. The minimum frequency which can propagate in the waveguide is	1) 1.5 GHz 2) 2.0 GHz 3) 2.5 GHz 4) 3.0 GHz

Best of luck for the future!