



PhD ENTRANCE EXAM RESULT , VMSBUTU

Answer Key for Electronics and Communication Engineering
Branch

| Question | Options |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 : A statement of the quantitative research question should: | <ul style="list-style-type: none">1) Extend the statement of purpose by specifying exactly the question (the researcher will address2) Help the research in selecting appropriate participants, research methods, measures, and materials3) Specify the variables of interest4) All the above |
| 2 : In the process of conducting research 'Formulation of Hypothesis" is followed by | <ul style="list-style-type: none">1) Statement of Objectives2) Analysis of Data3) Selection of Research Tools4) Collection of Data |
| 3 : In order to pursue the research, which of the following is priorly required? | <ul style="list-style-type: none">1) Developing a research design2) Formulating a research question3) Deciding about the data analysis procedure4) Formulating a research hypothesis |

| Question | Options |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 : What are the core elements of a Research Process? | 1) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations 2) Executive Summary; Literature Review; Data Gathered; Conclusions, Bibliography 3) Research Plan; Research Data; Analysis; References 4) Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions |
| 5 : What does the term 'longitudinal design' mean? | 1) A study completed far away from where the researcher lives 2) A study which is very long to read. 3) A study with two contrasting cases. 4) A study completed over a distinct period of time to map changes in social phenomena |
| 6 : Which institution approved the '6G Vision Framework'? | 1) NASSCOM 2) NITI Aayog 3) ITU 4) IMF |
| 7 : Which company has launched ChatGPT rival Bard in European Union, Brazil and other nations? | 1) Google 2) Microsoft 3) Apple 4) Infosys |
| 8 : What is AIRAWAT ? | 1) Submarine 2) AI supercomputer 3) 5G-enabled drone 4) Recently discovered exoplanet |

| Question | Options |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 : The Union Government has exempted which institution from the purview of the Right to Information Act, 2005? | 1) RBI 2) SEBI 3) CERT-In 4) Election Commission of India |
| 10 : What is 'PSiFI system' | 1) A primary method of waste disposal 2) A system for recognizing human emotions 3) A wearable device for monitoring blood pressure 4) A voice recognition AI tool |
| 11 : In a mixture of 60 litres, the ratio of milk to water is 2 : 1. If this ratio is to be 1 : 2, then the quantity of water (in litres) to be further added is ? | 1) 20 2) 30 3) 40 4) 60 |
| 12 : The cost of Type 1 rice is Rs. 15 per kg and Type 2 rice is Rs.20 per kg. If both Type 1 and Type 2 are mixed in the ratio of 2 : 3, then the price per kg of the mixed variety of rice is ? | 1) 19.5 2) 19 3) 18 4) 18.5 |
| 13 : A cistern is normally filled in 8 hours but takes two hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty it in ? | 1) 20 2) 28 3) 36 4) 40 |
| 14 : A starts business with Rs. 3500 and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital ? | 1) 8000 2) 8500 3) 9000 4) 7500 |
| 15 : A tank is 25 m long, 12 m wide and 6 m deep. The cost of plastering its walls and bottom at 75 paise per sq. m, is ? | 1) 456 2) 458 3) 558 4) 568 |

| Question | Options |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 16 : If MADE is coded as 12236 and BAD is coded as 123, then how will DECK be coded as ? | <p>1) 36212</p> <p>2) 34312</p> <p>3) 36201</p> <p>4) 44412</p> |
| 17 : Five balls L1, L2, L3, L4 and L5 are kept one above the other (not necessarily in the same order). L1 is just above L5 and just below L4. L2 is just above L3 and just below L5. How many balls are above L2 ? | <p>1) 2</p> <p>2) 3</p> <p>3) 4</p> <p>4) 4</p> |
| 18 : Mayank is the son of Chhaya. Chhaya and Deepa are sisters. Gayatri is the mother of Deepa. If Naman is the son of Gayatri , How is Mayank related to Naman ? | <p>1) Nephew</p> <p>2) Brother</p> <p>3) Father</p> <p>4) Son</p> |
| 19 : Which number will replace the question mark(?) in the following series? 98, 95, 86, 82, 66, ?, 36 ? | <p>1) 58</p> <p>2) 60</p> <p>3) 61</p> <p>4) 63</p> |
| 20 : If 5 November 2019 was Tuesday, then what was the day of the week on 5 December 2011 ? | <p>1) Tuesday</p> <p>2) Monday</p> <p>3) Sunday</p> <p>4) Saturday</p> |
| 21 : Silicon diode at room temperature for forward current of 26mA has dynamic resistance of about | <p>1) 1.7 Ohm</p> <p>2) 26K Ohm</p> <p>3) 50 Ohm</p> <p>4) 2 Ohm</p> |
| 22 : As the magnitude of reverse collector voltage increases in BJT, the effective base width | <p>1) Increases</p> <p>2) Decreases</p> <p>3) Remains constant</p> <p>4) Will depend on the type of material used in making the BJT</p> |

| Question | Options |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 23 : In MOSFET devices the n-channel type is better than the p-channel type in the following respects | 1) It has better noise immunity 2) It is faster 3) It is TTL compatible 4) It has better drive capacity |
| 24 : Zener diode works on ; 1. Collision of carries with crystal ions 2. Early effect 3. Rapture of covalent bonds due to strong electric field 4. Recombination Correct statements are : | 1) 1, 2, 3 & 4 2) 1, 2 & 4 3) Only 1 4) Only 3 |
| 25 : For an amplifier, the coupling method which gives maximum gain is | 1) Capacitance coupling 2) Resistance coupling 3) Impedance coupling 4) Transformer coupling |
| 26 : The presence of an unbypassed emitter resistor RE in a CE amplifier, will | 1) Increase the midband gain 2) Increase the bandwidth 3) Decrease the gain-bandwidth product 4) Provide positive feedback |
| 27 : Which of the following is not the one of the uses of 555 timer ? | 1) Multi vibrator 2) Schmitt trigger 3) FM demodulator 4) Comparator |
| 28 : When R is infinite, the voltage across R is 3 volts. When R is zero, the current through R is 3 Amp. What is the current through R when R=2 ? | 1) A 2) 1.5 A 3) 2A 4) Cannot be calculated with the help of given data only. |
| 29 : The power dissipated by a series RCL circuit is at the resonant frequency and is equal to | 1) Minimum, I ² R 2) Minimum, I ² R/2 3) Maximum, I²R 4) Maximum , I ² R/2 |

| Question | Options |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30 : Norton's theorem results in | <p>1) A current source with an impedance in parallel</p> <p>2) A voltage source with an impedance in series</p> <p>3) A current source with an impedance in series</p> <p>4) A voltage source with an impedance in parallel</p> |
| 31 : The condition for electrical symmetry of the circuit is | <p>1) $h_{12} = -h_{21}$</p> <p>2) $AD - BC = 1$</p> <p>3) $Z_{12} = Z_{21}$</p> <p>4) $A = D$</p> |
| 32 : Fourier transform of an even periodic function, contains only | <p>1) A constant</p> <p>2) Sin terms</p> <p>3) Odd harmonics</p> <p>4) None of these</p> |
| 33 : Electrical length of an antenna is | <p>1) greater than its physical length</p> <p>2) equal to its physical length</p> <p>3) smaller than its physical length</p> <p>4) not related to physical length</p> |
| 34 : The characteristic impedance of a lossless transmission line is given by | <p>1) $Z = \sqrt{LC}$</p> <p>2) $Z = \sqrt{C/L}$</p> <p>3) $Z = \sqrt{L/C}$</p> <p>4) $Z = LC$</p> |
| 35 : What is the length of stack pointer (SP) of 8085uP ? | <p>1) 6 bit</p> <p>2) 8 bit</p> <p>3) 12 bit</p> <p>4) 16 bit</p> |

| Question | Options |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 36 : What is the direction of data bus ? | 1) Unidirectional into uP 2) Unidirectional out of uP 3) Bi directional 4) Some lines into and some lines out of uP |
| 37 : In a 10 bit ADC, the quantization error is (in %) | 1) 1 2) 2 3) 0.1 4) 0.2 |
| 38 : Schmitt trigger can be used as | 1) Comparator 2) Square-wave generator 3) Flip-flop 4) All of these |
| 39 : Semiconductor memories are | 1) Volatile 2) Non volatile 3) Volatile, small size 4) Non volatile, small size |
| 40 : Gain margin is the reciprocal of the gain at the frequency at which the phase margin is | 1) 0 degree 2) 90 degree 3) -90 degree 4) 180 degree |
| 41 : By increasing the gain of the system 'k', the steady state error of the system will | 1) Increase 2) Decrease 3) Remain unaltered 4) None of these |
| 42 : A certain feedback system having damping factor of 0.8, is described by the following transfer functions $G(s) = \frac{12}{s^2 + 4s + 16}$ and $H(s) = K s$; The peak overshoot of the system is | 1) 0.01 2) 0.015 3) 0.02 4) 0.025 |

| Question | Options |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>43 : A feedback system has an open loop transfer function of $G(s)H(s) = \frac{K e^{-s}}{(s^2+2s+1)}$; The maximum value of K for the closed loop stability is</p> | <p>1) 0.5 2) 0 3) 1.5 4) 2</p> |
| <p>44 : For a periodic function the spectral density and auto correlation function are a</p> | <p>1) Laplace transform pair 2) Fourier Transform pair 3) Hilbert transform pair 4) None of these</p> |
| <p>45 : Companding is used to</p> | <p>1) Protect small signals in PCM from quantizing distortion 2) Overcome quantized noise in PCM 3) Overcome impulse noise 4) Reduce the sampling frequency</p> |
| <p>46 : Which of the following pulse modulation system is analog ?</p> | <p>1) Delta modulation (DM) 2) PCM 3) DPCM 4) PWM</p> |
| <p>47 : The system described by following input-output relation is $y(n) = a x(n) + b$</p> | <p>1) Linear, time-invariant 2) Linear, time-variant 3) Non linear, time-invariant 4) Non linear, time-variant</p> |
| <p>48 : An LED emitting at peak wavelength of 1310nm has radiative and nonradiative recombination times of 30 and 100ns respectively. The drive current is 40mA. The amount of power generated internally is</p> | <p>1) 20.8mW 2) 24.4mW 3) 29.2mW 4) 33.1mW</p> |
| <p>49 : 1mW converted into dBm, will be</p> | <p>1) 1 dBm 2) 100dBm 3) -10dBm 4) +10dBm</p> |

| Question | Options |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>50 : A signal having uniformly distributed amplitude in the interval $(-V, +V)$ is to be encoded using PCM with uniform quantization. The signal to quantizing noise ratio is encoded using PCM with uniform quantization. The signal to quantizing noise ratio is determined by the.</p> | <ol style="list-style-type: none">1) Dynamic range of signal2) Sampling rate3) Number of quantizing levels4) Power spectrum of signal |

Best of luck for the future!