

Ph.D. Entrance Examination, 2026
Electronics and Telecommunication Engineering

Day and Date:

Total Marks: 100

Time:

Instructions: i) All questions are compulsory

ii) Each question carries 2 marks

iii) Write the correct option in the box at right

iv) Use of non-programmable calculator is allowed

		Correct Option
Q. 1)	A Hypothesis must be _____	B
	A) Diffuse B) Specific	
	C) Slow D) Speedy	
Q. 2)	Research methodology is a way to systematically solve the	A
	A) Research problem B) Day today problem	
	C) Any problem D) Problems	
Q.3)	The final stage of a survey is	A
	A) Reporting B) Fieldwork	
	C) Assignment D) Calculation	
Q. 4)	The main characteristic of scientific research is	A
	A) All of B, C, D. B) Empirical	
	C) Experimental D) Theoretical	
Q.5)	In the synopsis Why your research is still necessary? Need to mention under	A
	A) Significance of research B) Introduction	
	C) Objectives D) Literature survey	
Q. 6)	Research Problem is selected from the stand point of	A
	A) Social Relevance B) Researcher's Interest	
	C) Availability of relevant literature D) Financial Support	
Q.7)	Bibliography given in research report	A
	A) Helps those interested in further research B) Has no relevance to research	
	C) Shows vast knowledge of researcher D) All of the above	

Q. 8)	_____ is the basis of scientific method.		A
	A) To formulate a research problem, test the hypothesis in carefully controlled condition that are challenge the hypothesis	B) To formulate a research problem and disprove the hypothesis	
	C) To test hypothesis and if they are disproved, they should be abandone.	D) To test hypothesis in conduction that are conductive to its success	
Q.9)	Formulation of Hypothesis may not be required in		D
	A) Normative Studies	B) Experiments studies	
	C) Survey method	D) Historical Studies	
Q. 10)	The main characteristic of _____ is that the research has no control over the variable		A
	A) Descriptive method	B) Experience method	
	C) Laboratory method	D) Experimental method	
Q.11)	Inquisitiveness is the mother of knowledge. The method, which man employs for obtaining the knowledge can be termed as		D
	A) Invention	B) Education	
	C) Experiment	D) Research	
Q. 12)	The mean marks of 100 students were given to be 40. It was found later that a mark 53 was read as 83. What are the correct mean marks?		A
	A) 39.7	B) 39.4	
	C) 39	D) 39.2	
Q.13)	Motivation Research is an important type of _____		B
	A) Applied Research	B) Qualitative Research	
	C) Fundamental Research	D) Quantitative Research	
Q. 14)	Which of the following is a measure of dispersion?		C
	A) median	B) mode	
	C) standard deviation	D) mean	
Q.15)	Following are the test scores of 12 students in a mathematics class. Find the percentile rank for the sore 85. The marks are 75, 80, 68, 53, 99, 58, 76, 73, 85, 88, 91, 79		C
	A) 33.67	B) 60.13	
	C) 66.66	D) 70.70	
Q. 16)	A researcher collects data from 100 students out of the total number of 1050 students. These 100 are termed as		D
	A) population	B) universe	
	C) set	D) sample	

Q.17)	Which co efficient of co relation best explains the relationship between two variables in social science		D
	A) 1.00	B) 0.06	
	C) 0.30	D) 0.6	
Q. 18)	Research ethics has a direct connection with which of the following stages of research?		B
	A) Delimiting the research scope	B) Reporting of research findings.	
	C) Defining the population and deciding the sampling technique for research.	D) Deciding on the statistical techniques to be used	
Q.19)	When a group of individuals is studied over a period of time it is a		A
	A) longitudinal study	B) cross sectional study	
	C) co relational study	D) field survey	
Q. 20)	What is not true of a research proposal?		A
	A) A mini research paper	B) It is a blue print to the research work to come	
	C) Well thought of outline of the research process	D) A document to convince other about the significance of the investigation	
Q.21)	The best suited design for testing hypotheses by reaching valid conclusions about relationships between independent and dependent variables is		B
	A) Historical research design	B) Experimental research design	
	C) Grounded theory research design	D) Descriptive research design	
Q. 22)	Which of the following is not the critical feature of qualitative research?		A
	A) establishing relationships between variables in social science	B) Researcher becomes immersed in the situation, present or past related to the phenomena.	
	C) sample size is generally small	D) Data is in the form of soft data	
Q.23)	Which is the most relevant to the concept of action research		C
	A) Full of activity-based research	B) Done in order to understand Culture	
	C) Helps to find solutions to day-to-day problems	D) Done in order to construct theory	
Q. 24)	Sociometric choices when represented graphically it is termed as		A
	A) sociogram	B) sociometry	
	C) picturegram	D) histogram	

Q.25)	This is not the purpose of review of researches done in related fields of study;		A
	A) to list the studies in their own research work	B) to avoid the replication of knowledge that exists	
	C) to know what knowledge already exists	D) to know gaps in knowledge that exists	
Q. 26)	Double integration of a unit step function would lead to		B
	A) an impulse	B) a parabola	
	C) a ramp	D) a doublet	
Q.27)	Classify diode in following category		C
	A) Linear and Active	B) Nonlinear Active	
	C) Nonlinear Passive	D) Linear Passive	
Q. 28)	The device that does not have the gate terminal is....		C
	A) SCR	B) FET	
	C) DIAC	D) TRIAC	
Q.29)	When a UJT turned ON, the resistance between emitter terminal and lower base terminal		B
	A) Remains the same	B) Is decreased	
	C) Is increased	D) Increases Linearly	
Q. 30)	In satellite communication via TDMA transponders TWT is operated		A
	A) At or near saturation region	B) In beginning of linear region	
	C) In beginning of cutoff region	D) In the middle of the linear region	
Q.31)	Unit of the channel-length modulation factor is		B
	A) V	B) 1/V	
	C) V^2	D) $V^{1/2}$	
Q. 32)	The p-type substrate in a conventional pn-junction isolated integrated circuit should be connected to:		C
	A) a DC ground potential	B) nowhere, i.e. left floating	
	C) the most negative potential available in the circuit	D) the most positive potential available in the circuit	
Q.33)	In an 8085 microprocessor, the contents of the accumulator and the carry flag are A7 (in hex) and 0, respectively. If the instruction RLC is executed, then the contents of the accumulator (in hex) and the carry flag, respectively, will be		D
	A) 4E and 0	B) 4E and 1	
	C) 4F and 0	D) 4F and 1	
Q. 34)	The minimum number of 2-input NAND gates required to implement a 2-input XOR gate is		A
	A) 4	B) 5	
	C) 6	D) 7	

Q.35)	Which of the following is an open loop control system?		D
	A) Ward Leonard control	B) Metadyne	
	C) Stroboscope	D) Field controlled D.C. motor	
Q. 36)	Consider an air-filled rectangular waveguide with dimensions $a = 2.286$ cm and $b = 1.016$ cm. The increasing order of the cut-off frequencies for different modes is		C
	A) $TE_{01} < TE_{10} < TE_{11} < TE_{20}$	B) $TE_{20} < TE_{11} < TE_{10} < TE_{01}$	
	C) $TE_{10} < TE_{20} < TE_{01} < TE_{11}$	D) $TE_{10} < TE_{11} < TE_{20} < TE_{01}$	
Q.37)	In a forward biased pn junction diode, the sequence of events that best describes the mechanism of current flow is		D
	A) injection, and subsequent drift and generation of minority carriers	B) extraction, and subsequent diffusion and generation of minority carriers	
	C) extraction, and subsequent drift and recombination of minority carriers.	D) injection, and subsequent diffusion and recombination of minority carriers	
Q. 38)	In IC technology, dry oxidation (using dry oxygen) as compared to wet oxidation (using steam or water vapour) produces		D
	A) superior quality oxide with a higher growth rate,	B) inferior quality oxide with a higher growth rate	
	C) inferior quality oxide with a lower growth rate	D) superior quality oxide with a lower growth rate	
Q.39)	In a MOSFET operating in the saturation region, the channel length modulation effect causes		D
	A) an increase in the gate-source capacitance	B) a decrease in the Transconductance	
	C) a decrease in the unity-gain cut-off frequency.	D) a decrease in the output resistance	
Q. 40)	A source $V_s(t) = V \cos 100 \pi t$ has an internal impedance of $(4 + j3) \Omega$. If a purely resistive load connected to this source has to extract the maximum power out of the source, its value in Ω should be		C
	A) 3	B) 4	
	C) 5	D) 7	
Q.41)	Feedback control system is basically _____		D
	A) Band pass filter	B) Band stop filter	
	C) High pass filter	D) Low pass filter	

Q. 42)	Which special type of diode is capable of both amplification and oscillation		C
	A) Point contact diode	B) Zener diode	
	C) Tunnel diode	D) Junctions' diodes	
Q. 43)	Which of the following is a type of error associated with digital - to - analog converters (DACs)?		D
	A) nonmonotonic error	B) incorrect output codes	
	C) offset error	D) nonmonotonic and offset error	
Q. 44)	Which resistive component is designed to be temperature sensitive?		A
	A) Thermistor	B) Rheostat	
	C) Potentiometer	D) Photoconductive cell	
Q. 45)	If series current doubles, then:		A
	A) resistance is halved	B) voltage is doubled	
	C) voltage is reduced	D) resistance is doubled	
Q. 46)	The voltage across any branch of a parallel circuit:		C
	A) varies as the total current varies	B) is inversely proportional to total circuit resistance	
	C) is equally applied to all branch conductance's	D) is dropped in proportion to each branch resistance	
Q. 47)	The common-mode voltage gain is:		A
	A) smaller than differential voltage gain	B) equal to voltage gain	
	C) greater than differential voltage gains	D) None of the above	
Q. 48)	In a PLL, to obtain lock, the signal frequency must:		C
	A) come within the lock range	B) be less than the capture frequency	
	C) come within the capture range	D) be greater than the capture frequency	
Q. 49)	Which instruction is used to return from a subroutine in 8085?		A
	A) RET	B) JMP	
	C) RST	D) CALL	
Q. 50)	A 2-Input NOR gate has one input permanently connected to logic LOW (0). How does the output behave with respect to the other input?		A
	A) Output is the complement of the other input.	B) Output follows the other input directly	
	C) Output is always LOW	D) Output is always HIGH	