

Seat No.	
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M.Phil / Ph.D. Entrance Examination, October - 2021
ELECTRICAL ENGINEERING

Day and Date : Tuesday, 26 - 10 - 2021**Total Marks : 100****Time : 04.00 p.m. to 06.00 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.

Research Methodology

- 1) In a qualitative research proposal you should not expect to see a _____.
A) Research question B) Research aim
C) Hypothesis D) Operational definition
- 2) Facts or information's are analyzed and critical evaluation is made in
A) Survey B) Action research
C) Analytical research D) Pilot study
- 3) The proposal section which intended to describe the purpose with full statement of the research question is _____.
A) Literature review B) Introduction
C) References D) Proposed method

P.T.O.

- 4) The statement of purpose in research study should _____.
A) Identify the design of the study
B) Identify the intent or objective of study
C) Specify the type of people to be used in the study
D) Describe the study
- 5) The method section of the research plan typically specifies...
A) The research participants
B) The apparatus, instruments and the materials for the research study
C) The planned research procedures
D) All of the above
- 6) The basis of scientific method is _____.
A) To test hypothesis in condition that is conclusive to its success
B) To formulate a research problem and disprove the hypothesis
C) To test hypothesis and if they are disproved, they should be abandoned completely
D) To formulate a research problem, test the hypothesis in carefully controlled conditions that challenge the hypothesis
- 7) The reasons for consulting handbooks, year books, encyclopedias, or review in initial stages of identifying a research topic is
A) They provide an overview of the issues related to topic
B) They are primary sources
C) They avoid reporting statistical data so one can interpret the results more easily
D) They are readily available

- 8) Qualitative and Quantitative research are the classification of research on the basis of
- A) Purpose of the research
 - B) Techniques used
 - C) Time dimensions
 - D) Use of the research
- 9) In an article it is most beneficial to read
- A) References
 - B) Methods
 - C) Introduction
 - D) Figures
- 10) Basic research can also be called as
- A) Practical research
 - B) Fundamental research
 - C) Action research
 - D) Assessment research
- 11) The quality of research to produce almost identical results in successive repeated trials reflects its
- A) Reliability
 - B) Validity
 - C) Accuracy
 - D) None of these
- 12) After a researcher has stated the specific problem to be studied in an experiment, he must then develop a
- A) Hypothesis
 - B) Theory
 - C) Conclusion
 - D) Summary of the data
- 13) A dependent variables refers to
- A) The experimental condition
 - B) The variable which shows us the effect of the manipulation
 - C) The variable being manipulated or varied in some way by the researcher
 - D) A variable with single value which remains constant in particular context

- 14)** A type II error is also known as
- A) Double negative
 - B) Positive negative
 - C) False positive
 - D) False negative
- 15)** Conducting surveys is the most common method of generating
- A) Primary data
 - B) Secondary data
 - C) Qualitative data
 - D) None of the above
- 16)** The alternative hypothesis is also known as
- A) Elective hypothesis
 - B) Optional hypothesis
 - C) Research hypothesis
 - D) Null hypothesis
- 17)** The interview in which questions are already prepared is called
- A) Telephonic interview
 - B) Personal interview
 - C) Unstructured interview
 - D) Structured interview
- 18)** The group that does not receive the experimental treatment condition is
- A) Experimental group
 - B) Control group
 - C) Treatment group
 - D) Independent group
- 19)** Data analysis in qualitative research, as contrasted with quantitative research is generally
- A) Theoretical rather than applied
 - B) Applied rather than theoretical
 - C) Deductive rather than inductive
 - D) Inductive rather than deductive

- 20)** Conclusions from qualitative research are
- A) Less certain than from quantitative research
 - B) Of little practical use
 - C) Seldom defensible
 - D) Of descriptive value only
- 21)** The starting point for literature search is
- A) Primary data
 - B) Secondary data
 - C) Tertiary data
 - D) None of these
- 22)** Last step of problem formulation is
- A) Survey
 - B) Literature survey
 - C) Rephrasing the research problem
 - D) Discussion
- 23)** The way or mode of gathering data is
- A) Research design
 - B) Research problem
 - C) Research method
 - D) Research tools
- 24)** Observation is a physical and _____ activity
- A) Mental
 - B) Social
 - C) Psychological
 - D) Personal
- 25)** In research report _____ is used to acknowledge indebtedness
- A) foot notes
 - B) index
 - C) appendix
 - D) bibliography

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M/P ENT- 111

- 31)** A relay is connected to a 400/5 A current transformer and set for 150% . the primary fault current of 2400 A needs a plug setting multiplier of
- A) 2 B) 4
C) 6 D) 8
- 32)** Power transmission lines are transposed to reduce
- A) Skin effect
B) Ferranti effect
C) Transmission loss
D) Interference with neighbouring communication lines
- 33)** The average output of semi-converter connected to a 120V, 50Hz supply and firing angle of $\pi/2$ is
- A) 54.02 V B) 56.02 V
C) 108.04 V D) 0 V
- 34)** The theorem which states that in any liner, non-linear, passive, active, time variant and time in-variant network, the summation of instantaneous power is zero will be called as
- A) Compensation theorem B) Reciprocity theorem
C) Tellegen's theorem D) Superposition theorem
- 35)** A dc voltmeter has sensitivity of $1000\Omega/V$. when it measures half full scale in 100 V range. The current through the voltmeter is
- A) 100 mA B) 50 mA
C) 1 mA D) 0.5 mA

M/P ENT- 111

- 36)** The primary winding of a single phase step down transformer (rated for 500 VA. 400/200 volts, 50 Hz) is wound with conductors having 4.5 A/sq mm. Then the weight of secondary winding in terms of that of primary winding will
- A) 50% B) 200%
- C) Nearly 100% D) Not be predicted
- 37)** When fault occurs near the impedance relay the V/I ratio is
- A) Constant
- B) Lower than the value when fault occurs away from relay
- C) Higher than the value when fault occurs away from relay
- D) None of the above
- 38)** A dc series motor of resistance 1Ω across terminals runs at 1000 rpm at 250 V taking a current 20 A, when an additional resistance of 6Ω is inserted in series and taking the same current, then new speed will be
- A) 142.8 rpm B) 166.7 rpm
- C) 956.6 rpm D) 478.3 rpm
- 39)** If a fixed amount of power is to be transmitted over certain length with fixed power loss, it can be said that volume of conductor is
- A) Inversely proportional to magnitude of voltage and that of power factor of the load
- B) Inversely proportional to square of the voltage and square of power factor of the load
- C) Proportional to magnitude of the voltage only
- D) None of the above

- 40) Which type of connection is employed for current transformer for the protection of star-delta connected 3 phase transformer
 - A) Delta-Delta
 - B) Star-Star
 - C) Star-Delta
 - D) Delta-Star
- 41) In case of a HVDC system there is
 - A) Charging current but no skin effect
 - B) No charging current but skin effect
 - C) Neither charging current nor skin effect
 - D) Both charging current and skin effect
- 42) The angular velocity of 4 pole 2 KW induction motor is 2π radians per second. Therefore its speed in rpm should be
 - A) 30
 - B) 15
 - C) 60
 - D) 90
- 43) In two wattmeter method of power measurement if one wattmeter reads zero then
 - A) It may be faulty
 - B) Power factor of circuit is unity
 - C) Power factor of circuit is 0.5
 - D) None of these
- 44) A freewheeling diode in phase controlled rectifiers
 - A) Enables inverter operation
 - B) Is responsible for additional reactive power
 - C) Is responsible for additional harmonics
 - D) Improves the line power factor
- 45) A permanent magnet stepper motor with 8 poles in stator and 6 pole in rotor will have step angle of
 - A) 7.5°
 - B) 15°
 - C) 30°
 - D) 60°

- 46)** Corona losses are minimized when
- A) Smooth conductor is used
 - B) Conductor size is reduced
 - C) Sharp points are provided in the line hardware
 - D) Current density in conductor is reduced
- 47)** The initiation of electric arc at instant of contact separation is caused by
- A) Thermionic emission of electrons
 - B) Field emission of electrons
 - C) Both (A) and (B)
 - D) None of the above
- 48)** Multiplication of two binary numbers A & B is 11011. If A = 011. B is
- A) 0101
 - B) 1100
 - C) 1001
 - D) 1011
- 49)** Compared to continuous time system, the discrete system is
- A) More accurate and less stable
 - B) Less accurate but more stable
 - C) Less accurate and less stable
 - D) More accurate and more stable
- 50)** In purely resistive circuit, the average power P_{av} is _____ the peak power P_{max}
- A) Double
 - B) One-half of
 - C) One-fourth
 - D) Equal to



Rough Work

Rough Work