

Seat No.	
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**M.Phil./Ph.D. Entrance Examination, July - 2022**  
**CIVIL ENGINEERING**

**Day and Date : Saturday, 16 - 07 - 2022**  
**Time : 11.00 a.m. to 01.00 p.m.**

**Total Marks : 100**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Each question carries 2 marks.
  - 3) Answer 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. What do you mean by an assumption?
  - A) It is a framework in which research work has to be done
  - B) It simplifies the logical process of arriving at the solution
  - C) It is a restrictive condition
  - D) None of the above
2. Type-1 Error occurs when
  - A) The null hypothesis is rejected even when it is true
  - B) The null hypothesis is accepted even when it is false
  - C) The null hypothesis as well as Alternative hypothesis, both are rejected
  - D) None of the above

***P.T.O.***

- 3.** Survey research methods come under
- A) Pre-empirical research methods      B) Descriptive research methods  
C) Experimental research methods      D) All of the above
- 4.** Reliability of a research result implies its
- A) Verifiability      B) Validity  
C) Uniqueness      D) Usefulness
- 5.** A good researcher lays his hands on
- A) A specific area and tries to understand it great details in  
B) A specific area and tries to understand it in minute details  
C) Several areas and tries to understand them at basic level  
D) Any area of his interest
- 6.** Research design refers to the
- A) Analysis of data for the purpose of preparing research report  
B) Steps necessary to define the necessary problems  
C) Plan that specify how data should be collected and analysed for the purpose of research  
D) Suggestions made in the report about the research problem
- 7.** Where is the objective observation used?
- A) In conducting experiments      B) In research  
C) In normal behaviour      D) In almost all the situations
- 8.** Tippit table is
- A) A table of random digits  
B) Used in statistical investigations  
C) Used in sampling methods  
D) All of the above

- 9.** What is the use of factorial Analysis?
- A) For setting Hypothese
  - B) To understand the difference between two variables
  - C) To understand the relationship between two variables
  - D) To understand the difference between different variables
- 10.** The different between the Ex-Post Facto Research and Experiments research is
- A) Expose
  - B) Control
  - C) Search
  - D) None of the above
- 11.** The function of research design is to provide the collection of relevant evidence
- I) With minimal expenditure of money and maximum time
  - II) With minimal expenditure of time and money
  - III) With minimal expenditure of money and maximum efforts
  - IV) With minimal expenditure of effort
- A) I and II is correct
  - B) I and III is correct
  - C) II and III is correct
  - D) II and IV is correct
- 12.** A researcher is interested in studying the prospects of a particular political party in an urban area. What tool should he prefer for the study?
- A) Rating scale
  - B) Interview
  - C) Questionnaire
  - D) Schedule

## M/P ENT - 31

- 13.** The principal of a school conducts an interview session of teachers and students with a view to explore the possibility of their enhanced participation in school programmes. This endeavour may be related to which type of research?
- A) Evaluation Research                      B) Fundamental Research  
C) Action Research                          D) Applied Research
- 14.** Which of the following is a function of theory?
- A) Integrating and summarizing current knowledge  
B) Making predictions  
C) Explaining phenomena  
D) All of the above are important functions of theory
- 15.** Which sequence of research steps is logical in the list given below?
- A) Problem formulation, Analysis, Development of Research design, Hypothesis making, Collection of data, Arriving at generalizations and conclusions.  
B) Development of Research design, Hypothesis making, Problem formulation, Data analysis, Arriving at conclusions and data collection.  
C) Problem formulation, Hypothesis making, Development of a Research design, Collection of data, Data analysis and formulation of generalizations and conclusions.  
D) Problem formulation, Deciding about the sample and data collection tools, Formulation of hypothesis, Collection and interpretation of research evidence.
- 16.** Which of the following is not a graphic representation
- A) Table    B) Pie chart  
C) Histogram                                  D) Bar chart

**17.** From the following list of statements identify the set which has negative implications for 'research ethics':

- (i) A researcher critically looks at the findings of another research.
- (ii) Related studies are cited without proper references.
- (iii) Research findings are made the basis for policy making.
- (iv) Conduct of practitioner is screened in terms of reported research Evidences

- A) (i) and (iii)
- B) (ii) and (iii)
- C) (ii) and (iv)
- D) (i) and (ii)

**18.** All full fledge miniature study of research problem is called

- A) Detailed study
- B) Analytical study
- C) Pilot study
- D) Prerequisite Study

**19.** A research is based on

- A) Ideas of the scientists
- B) Experiments
- C) Scientific method
- D) Some general principles

**20.** Evaluation research is concerned with

- A) What are we doing?
- B) Why are we doing?
- C) How well are we doing?
- D) None of the above

- 21.** Probability sampling is rarely used in qualitative research because :
- A) Qualitative researchers are not trained in statistics
  - B) It is very old-fashioned
  - C) It is often not feasible
  - D) Research questions are more important than sampling
- 22.** The research studies that explore the effect of one thing on another and more specifically, the effect of one variable on another are known as \_\_\_\_\_
- A) Causal research
  - B) Applied research
  - C) Conclusive research
  - D) Exploratory research
- 23.** Experimental research aims at :
- A) Establishing plausible cause and effect relationship
  - B) Establishing true cause and effect relationships
  - C) Determining relationships among variables
  - D) Determining status of resources, facilities, opinions etc.
- 24.** What is the name of the conceptual framework in which the research is carried out?
- A) Research hypothesis
  - B) Synopsis of Research
  - C) Research paradigm
  - D) Research design
- 25.** Research pertaining to pure mathematics or natural laws is the example of :
- A) Qualitative research
  - B) Empirical research
  - C) Analytical research
  - D) Fundamental research

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32. The term \_\_\_\_\_ is used to refer the effect derived from space of a room that is its length, width and height.
- A) Prospect  
B) Sanitation  
C) Privacy  
D) Roominess
33. All \_\_\_\_\_ tend to accelerate the setting of cement and to improve the strength of concrete in early stages.
- A) Chlorides  
B) Sulphates  
C) Sodium  
D) Potassium
34. The only drawback of lightweight concrete is that the \_\_\_\_\_.
- A) Depth of carbonation  
B) Heavy absorption  
C) Desalination  
D) Oxidation
35. The difference between the maximum time available and the actual time needed to perform an activity is known as \_\_\_\_\_.
- A) Free float  
B) Independent float  
C) Total float  
D) Half float
36. What is the field irrigation requirement (FIR)?
- A) Amount of water required to meet the field irrigation requirements plus water lost in conveyance through the canal system  
B) The water required to meet the evaporation needs of a crop  
C) Amount of water required to delivered at the field to meet evapotranspiration and leaching needs  
D) Amount of water required to meet the net irrigation requirements plus water lost due to surface runoff and percolation

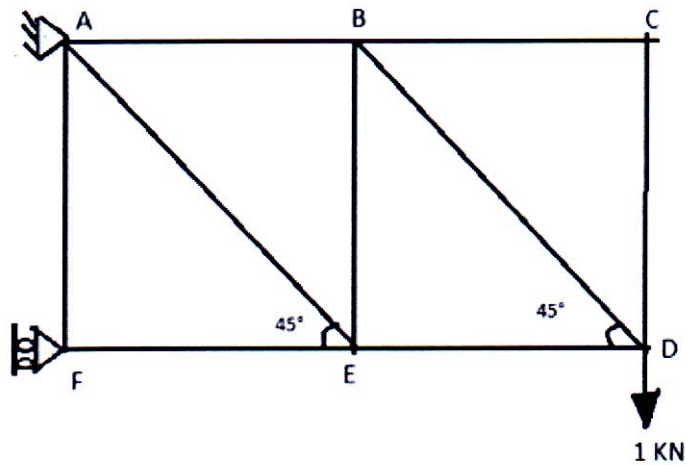


## M/P ENT - 31

37. Given that a particular crop requires about 20 cm depth of water at an interval of 40 days, and the base period is 400 days. Find the delta for the crop? Now using this delta find the duty of water for the crop?
- A) 150 cm, 1150 hectares/cumec
  - B) 180 cm, 1825 hectares/cumec
  - C) 200 cm, 1728 hectares/cumec
  - D) 195 cm, 1920 hectares/cumec
38. Which of the following statement is not correct about Effective rainfall?
- A) It doesn't take into consideration precipitation lost through deep percolation
  - B) It satisfies evapotranspiration needs of the crop
  - C) It includes surface runoff loss
  - D) It doesn't include surface runoff water loss
39. Water wells excavated through confined aquifers are known as \_\_\_\_\_.
- A) artesian wells
  - B) non-artesian wells
  - C) gravity wells
  - D) water table wells
40. What is the most critical condition of slide of the U/s slope?
- A) The sudden drawdown of the reservoir
  - B) Reservoir full condition
  - C) Steady seepage condition
  - D) Sudden drawdown and reservoir full condition
41. An impulse turbine is essentially a \_\_\_\_\_.
- A) low-speed turbine and is used for high heads
  - B) low-speed turbine and is used for low heads
  - C) high-speed turbine and is used for high heads
  - D) high-speed turbine and is used for low heads

- 42.** GIS uses the information from which of the following sources?
- A) Non- spatial information system
  - B) Spatial information system
  - C) Global information system
  - D) Position information system
- 43.** The horizontal angle between the true meridian and the magnetic meridian shown by needle at the time of observation is called \_\_\_\_\_.
- A) True bearing
  - B) Magnetic bearing
  - C) Arbitrary bearing
  - D) Magnetic declination
- 44.** For an incompressible fluid does density vary with temperature and pressure?
- A) It varies for all temperature and pressure range
  - B) It remains constant
  - C) It varies only for lower values of temperature and pressure
  - D) It varies only for higher values of temperature and pressure
- 45.** A stone weighed 177 N on earth. It was dropped in to oil of specific gravity 0.8 on a planet whose acceleration due to gravity is  $5\text{m/s}^2$ . It displaced oil having weight of 100N. What was the volume of oil displaced by the stone?
- A) 25 Litres
  - B) 15 Litres
  - C)  $25\text{ m}^3$
  - D) None of the mentioned
- 46.** When the depth is normal, which parameter is zero?
- A) Pressure
  - B) Temperature
  - C) Volume
  - D) Acceleration

47. Calculate the force in member BC.



- A) 0 kN  
B)  $2\sqrt{2}$  kN (TENSILE)  
C) 1 kN (TENSILE)  
D) 1 kN (COMPRESSIVE)
48. Which of the following is statically determinate structure?  
A) Two hinged arch  
B) Fixed beam  
C) Double overhanging  
D) Continuous beam
49. Which of the following load combination is not possible?  
A) Dead load + imposed load  
B) Dead load + wind load + earthquake load  
C) Dead load + imposed load + wind load  
D) Dead load + imposed load + earthquake load
50. Effective length of compression member is \_\_\_\_\_.  
A) distance between ends of members  
B) distance between end point and midpoint of member  
C) distance between points of contraflexure  
D) distance between end point and centroid of member



**Rough Work**