

Total No. of Printed Pages: 06

No. of Questions: 50

Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar
PET 2024 (9017) Doctor of Philosophy (Pharmaceutical and Fine Chemical)

(To be filled by the Candidate)

Candidate Seat Number
(As per Admit card)

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OMR Sheet Number

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Invigilator's signature with Date

Candidate's Seat No. in Words : _____

Name of the Center : _____

Paper Code & Name of Examination : **9017- Doctor of Philosophy (Pharmaceutical and Fine Chemical)**Date: **03/10/2024** **PET 2024 - EXAMINATION**Time: **One Hours** Total Marks: **100****Important Instructions for the candidate**

- Write your seat number and OMR Sheet number on the question paper in the earmarked space
- This question paper carries Fifty (50) Multiple-choice type questions and each question carries 2 Marks
- At the commencement of examination, the question paper will be given to the student.
- Each question has four alternative responses marked (A) (B) (C) and (D). You have to darken the circle as indicated below on the correct response against each question
Example: where (C) is correct answer

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- Your responses to the answer are to be indicated in the OMR Sheet. If you mark at any place other than in the circle in the OMR Sheet it will not be evaluated.
- Rough work is to be done at the end of this question paper.
- You have to return OMR answer sheet and question paper to the invigilator at the end of examination compulsorily and must not carry with you outside the examination hall.
- Use only Black / Blue ball point pen
- Use of any type of calculator or log table etc. is prohibited.
- There is no negative marking for incorrect answers

विद्यार्थ्यांसाठी महत्त्वाच्या सूचना

- परीक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात तसेच आपणास दिलेल्या उत्तर पत्रिकेचा क्रमांक त्याखाली लिहावा.
- या प्रश्नपत्रिकेतील सर्व प्रश्न सोडवणे अनिवार्य आहे.
- परीक्षा सुरू झाल्यावर विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल.
- प्रत्येक प्रश्नासाठी (A) (B) (C) (D) अशी चार विकल्प उत्तरे दिली आहेत, त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा निळा करावा.
उदा: जर (C) हे उत्तर योग्य असेल तर

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- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओएमआर उत्तर पत्रिकेतच दर्शवावीत इतर ठिकाणी लिहिलेली उत्तरे तपासली जाणार नाहीत.
- प्रश्नपत्रिकाच्या शेवटी कोन्या जागेवरच कच्चे काम करावे
- परीक्षा संपल्यानंतर विद्यार्थ्यांनी मूळ ओ. एम. आर उत्तरपत्रिका पर्यवेक्षकाकडे परत करणे आवश्यक आहे तथापि प्रश्नपत्रिका व ओ. एम. आर. उत्तरपत्रिका आपल्याबरोबर नेण्यास विद्यार्थ्यांला परवानगी नाही.
- फक्त काळ्या किंवा निळ्या बॉलपेनचाच वापर करावा
- कॅल्क्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही

- | Q. No. | Question |
|--------|---|
| 1. | Research problem is selected from the standpoint of
(A) Social relevance
(B) Financial support
(C) Researcher's interest
(D) Availability of relevant literature |
| 2. | Which one is called non-probability sampling?
(A) Cluster sampling
(B) Quota sampling
(C) Systematic sampling
(D) Stratified random sampling |
| 3. | What are the conditions in which Type-I error occurs?
(A) The null hypotheses get accepted even if it is false
(B) The null hypotheses get rejected even if it is true
(C) Both the null hypotheses as well as alternative hypotheses are rejected
(D) Both the null as well as alternative hypothesis are accepted |
| 4. | Which of the following features are considered as critical in qualitative research?
(A) Collecting data with the help of standardized research tools.
(B) Design sampling with probability sample techniques.
(C) Collecting data with bottom-up empirical evidence.
(D) Gathering data with top-down schematic evidence. |
| 5. | Which one is called non-probability sampling?
(A) Cluster sampling
(B) Quota sampling
(C) Systematic sampling
(D) Stratified random sampling |
| 6. | The experimental study is based on
(A) The manipulation of variables
(B) Conceptual parameters
(C) Replication of research
(D) Survey of literature |
| 7. | When a research problem is related to heterogeneous population, the most suitable sampling method is:
(A) Cluster Sampling
(B) Stratified Sampling
(C) Convenient Sampling
(D) Lottery Method |
| 8. | Factorial Analysis is used to
(A) Know the relationship between two variables
(B) Test the Hypothesis
(C) Know the difference between two variables
(D) Know the difference among the many variables |
| 9. | Which of the following is the first step in starting the research process?
(A) Searching sources of information to locate the problem.
(B) Survey of related literature
(C) Identification of the problem
(D) Searching for solutions to the problem |
| 10. | A null hypothesis is
(A) Subjective in nature
(B) Objective in nature
(C) When there is no difference between the variables
(D) When there is huge difference between the variables |

11. The complete fulfilment of the objectives in the dissertation can be precisely visualized in
 (A) Conclusion (B) Results
 (C) Discussion (D) Materials & methods
12. The heart of any research is
 (A) Results & discussion (B) Work plan
 (C) Aim & objectives (D) Gap in existing research
13. The empirical research is all about
 (A) Proposing the solutions (B) Testing of feasibility of solution
 (C) Identifying and defining the problems (D) Testing the theories
14. The Chi-Square test is used to compare the
 (A) Mean (B) Standard deviation
 (C) Standard error (D) Observed and expected results
15. The F-test is used to compare the
 (A) Mean (B) Median
 (C) Variance (D) Mode
16. When an independent-samples t-test does not meet the assumption of normality, what is an appropriate alternative test?
 (A) Sign test (B) Mann-Whitney U test
 (C) Levene's test (D) Dependent-samples t-test
17. Which of the following tests would be used to test the mean of a continuous variable to a population mean?
 (A) One-sample t-test (B) Independent-samples t-test
 (C) Chi-squared t-test (D) Dependent-samples t-test
18. Which of the following statements is true about the arithmetic mean of two regression coefficients?
 (A) It is less than the correlation coefficient
 (B) It is equal to the correlation coefficient
 (C) It is greater than or equal to the correlation coefficient
 (D) It is greater than the correlation coefficient
19. While testing a hypothesis, if the level of significance is not mentioned then it is considered to be
 (A) 2 % (B) 1%
 (C) 0.5% (D) 0.1%
20. Larger values of r^2 (R^2) imply that the observations are more closely grouped about the
 (A) Average value of the independent variables
 (B) Average value of the dependent variable
 (C) least squares line
 (D) Origin
21. When the error terms have a constant variance, a plot of the residuals versus the independent variable x has a pattern that
 (A) Fans out (B) Funnels in
 (C) Fans out, but then funnels in (D) Forms a horizontal band pattern

22. If the correlation coefficient is a positive value, then the slope of the regression line
 (A) Must also be positive (B) Can be either negative or positive
 (C) Can be zero (D) Cannot be zero
23. If two dice are thrown together, what is the probability of getting a total of 8?
 (A) 1/4 (B) 1/6
 (C) 1/12 (D) 5/36
24. If $P(A) = 0.4$ and $P(B) = 0.5$, what is the probability of both A and B occurring?
 (A) 0.9 (B) 0.2
 (C) 0.3 (D) 0.8
25. If $P(E) = 0.07$, then what is the probability of 'not E'?
 (A) 0.93 (B) 0.95
 (C) 0.89 (D) 0.90
26. The IUPAC name "1-[2-(ethanesulfonyl)ethyl]-2-methyl-5-nitro-1H-imidazole is of
 (A) Metronidazole (B) Tinidazole
 (C) Albendazole (D) Mebendazole
27. In order to avoid the bioavailability problems, drug should have minimum aqueous solubility of
 (A) 0.01% (B) 0.1%
 (C) 1% (D) 10%
28. Reserpine is
 (A) Unionized at gastric pH (B) Ionized at gastric pH
 (C) Unionized at intestinal pH (D) Ionized at intestinal pH
29. $\log \frac{dX_u}{dt} = \log k_e X_0 - Kt/2.303$ states that
 (A) Semi logarithmic plot of absorption rate of a drug versus time is linear
 (B) Semi logarithmic plot of absorption rate of a drug versus time is non-linear
 (C) Semi logarithmic plot of excretion rate of a drug versus time is non-linear
 (D) Semi logarithmic plot of excretion rate of a drug versus time is linear
30. The area under curve of concentration versus time profile of a drug can be extended to infinity by adding
 (A) C^*/k (B) C^*/k_a
 (C) $C^*/\log k$ (D) $C^*/\log k_a$
31. Which of the following drug has high Hepatic extraction ratio?
 (A) Diazepam (B) Morphine
 (C) Phenytoin (D) Theophylline
32. The upper limit of acceptability of friability of the tablet formulation is
 (A) 0.01 to 0.1 % (B) 0.1 to 0.8%
 (C) 0.8 to 1 % (D) 1 to 2 %
33. The chemical composition of diatomaceous earth is
 (A) Silica (B) Aluminosilicates
 (C) Silica and aluminosilicates (D) Silica, aluminosilicates and cellulose

34. Hydrates are the type of
 (A) Stoichiometric amorphous compounds
 (B) Non-stoichiometric crystalline compounds
 (C) Non-stoichiometric inclusion compounds
 (D) Stoichiometric solvates
35. As per USP, the maximum weight variation tolerance for uncoated tablets having weight range of 130 to 324 mg is
 (A) 10 % (B) 7.5%
 (C) 5 % (D) 2.5%
36. Troches are the types of tablets that are used to treat
 (A) Oral cavity infection (B) Stomach infection
 (C) Intestinal infection (D) Rectal infection
37. The fluid energy mill reduces the of size of moderately hard and friable materials in the range of
 (A) 300 to 1000 μm (B) 100 to 300 μm
 (C) 1 to 30 μm (D) 10 to 300 μm
38. In microwave heating, the power conversion equation is
 (A) $P = kfE^2\epsilon \tan\delta$ (B) $P = kfE^2\beta \tan\delta$
 (C) $P = kfE^2\alpha \tan\delta$ (D) $P = kfE^2\gamma \tan\delta$
39. Tight junction in blood-cerebrospinal fluid lies at
 (A) Sertoli cells (B) Choroid cells
 (C) Astrocytes (D) Beta cells
40. Average weight and area of adult skin is
 (A) 3 kg 3 m^2 (B) 0.5 kg 0.5 m^2
 (C) 1 kg 1 m^2 (D) 2 kg 2 m^2
41. The ratio of elimination rate and plasma conc. represents
 (A) V_d (B) $t_{1/2}$
 (C) Clearance (D) K_e
42. Alizarin yellow G indicator shows orange color in pH range of
 (A) 1-3 (B) 5-7
 (C) 3-5 (D) 10-12
43. The example of cardio-selective β_1 blocker is
 (A) Carvedilol (B) Esmolol
 (C) Labetalol (D) Nadolol
44. The most accurate pharmacological method of bioassay is
 (A) Graded dose response assay (B) Direct end point assay
 (C) Quantal assay (D) All or None assay
45. Tolmetin belongs to the class of
 (A) Anti-emetic drugs (B) Anti-anginal drugs
 (C) Anti-arthritis drugs (D) Anti-platelet drugs

46. Rosiglitazone improves glycemic control by
 (A) Reducing glucose uptake via ion pumps
 (B) Altering the glucose metabolism by enzymatic systems
 (C) Improving insulin sensitivity
 (D) Improving resistivity to glucose
47. In HPLC, the pH of the mobile phase is selected on the basis of
 (A) Ion-pair agents of the system
 (B) pKa of the analyte
 (C) Sensitivity of the HPLC column
 (D) Log P of the analyte
48. In LC-MS/MS, the number of quadrupoles present are
 (A) One (B) Two
 (C) Three (D) Four
49. The spectrum of the powder X-Ray diffraction shows the date of
 (A) 1θ versus intensity (B) 2θ versus intensity
 (C) 3θ versus intensity (D) 4θ versus intensity
50. Rosettes of calcium oxalate crystals are found in
 (A) Senna (B) Rhubarb
 (C) Cinchona (D) Licorice
