Post Graduate School
Indian Agricultural Research Institute, New Delhi
Examination for Admission to Ph.D. Programme 2013-2014

Discipline : Agricultural Extension

Discipline Code : 04

Roll No. ☐☐☐☐☐☐☐

Please Note:

(i) This question paper contains **12** pages. **Please check whether all the pages are printed in this set.** Report discrepancy, if any, **immediately** to the invigilator.

(ii) *There shall be NEGATIVE marking for WRONG answers in the Multiple Choice type questions (No. 1 to 130) which carry one mark each. For every wrong answer 0.25 mark will be deducted.*

PART – I (General Agriculture)

Multiple choice questions (No. 1 to 30). Choose the correct answer (*a, b, c* or *d*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

1. Who is the present Chairman of Protection of Plant Varieties and Farmers' Right Authority (PPV&FRA)?
a) Dr. R.R. Hanchinal
b) Dr. P.L. Gautam
c) Dr. S. Nagarajan
d) Dr. Swapan K. Datta

2. Which among the following is another name for vitamin B_{12}?
a) Niacin
b) Pyridoxal phosphate
c) Cobalamin
d) Riboflavin

3. The largest share in India's farm export earning in the year 2011-12 was from
a) Basmati rice
b) Non-basmati rice
c) Sugar
d) Guar gum

4. The National Bureau of Agriculturally Important Insects was established by ICAR in _____, was earlier known as _____.
a) Bangalore; PDBC
b) New Delhi; National Pusa Collection
c) Ranchi; Indian Lac Research Institute
d) New Delhi; NCIPM

5. The most important sucking pests of cotton and rice are respectively
a) *Nilaparvata lugens* and *Aphis gossypii*
b) *Aphis gossypii* and *Thrips oryzae*
c) *Amrasca biguttula biguttula* and *Scirtothrips dorsalis*
d) *Thrips gossypii* and *Orseolia oryzae*

6. Which of the following microorganism causes fatal poisoning in canned fruits and vegetables?
a) *Aspergillus flavus*
b) *Penicillium digitatum*
c) *Clostridium botulinum*
d) *Rhizoctonia solani*

7. The cause of the great Bengal Famine was
a) Blast of rice
b) Brown spot of rice
c) Rust of wheat
d) Karnal bunt of wheat

8. Actinomycetes belong to
a) The fungi
b) Eukaryote
c) *Mycelia sterilia*
d) None of the above

9. A virus-free clone from a virus infected plant can be obtained by
a) Cotyledonary leaf culture
b) Axenic culture
c) Stem culture
d) Meristem tip culture

10. Which of the following is not an objective of the National Food Security Mission?
a) Sustainable increase in production of rice, wheat and pulses
b) Restoring soil fertility and productivity at individual farm level
c) Promoting use of bio-pesticides and organic fertilizers
d) Creation of employment opportunities

11. Agmarknet, a portal for the dissemination of agricultural marketing information, is a joint endeavour of
a) DMI and NIC
b) DMI and Ministry of Agriculture
c) NIC and Ministry of Agriculture
d) DMI and Directorate of Economics and Statistics

12. The share of agriculture and allied activities in India's GDP at constant prices in 2011-12 was
a) 14.1%
b) 14.7%
c) 15.6%
d) 17.0%

13. The average size of land holding in India according to Agricultural Census 2005-06 is
a) 0.38 ha
b) 1.23 ha
c) 1.49 ha
d) 1.70 ha

14. 'Farmers First' concept was proposed by
a) Paul Leagans
b) Neils Rolling
c) Robert Chamber
d) Indira Gandhi

15. In the year 2012, GM crops were cultivated in an area of
a) 150 million hectare in 18 countries
b) 170 million hectare in 28 countries
c) 200 million hectare in 18 countries
d) 1.70 million hectare in 28 countries

16. The broad-spectrum systematic herbicide glyphosate kills the weeds by inhibiting the biosynthesis of
a) Phenylalanine
b) Alanine
c) Glutamine
d) Cysteine

17. At harvest, the above ground straw (leaf, sheath and stem) weight and grain weight of paddy crop are 5.5 and 4.5 tonnes per hectare, respectively. What is the harvest index of paddy?
a) 45%
b) 50%
c) 55%
d) 100%

18. Crossing over between non-sister chromatids of homologous chromosomes takes place during
a) Leptotene
b) Pachytene
c) Diplotene
d) Zygotene

19. The term 'Heterosis' was coined by
a) G.H. Shull
b) W. Bateson
c) T.H. Morgan
d) E.M. East

20. When a transgenic plant is crossed with a non-transgenic, what would be the zygosity status of the F_1 plant?
a) Homozygous
b) Heterozygous
c) Hemizygous
d) Nullizygous

21. The highest per capita consumption of flowers in the world is in
a) The USA
b) India
c) Switzerland
d) The Netherlands

22. Which of the following is a very rich source of betalain pigment?
a) Radish
b) Beet root
c) Carrot
d) Red cabbage

23. Dog ridge is
a) Salt tolerant rootstocks of mango
b) Salt tolerant rootstocks of guava
c) Salt tolerant rootstocks of grape
d) Salt tolerant rootstocks of citrus

24. Which of the following micronutrients are most widely deficient in Indian soils?
a) Zinc and boron
b) Zinc and iron
c) Zinc and manganese
d) Zinc and copper

25. Which of the following fertilizers is not produced in India?
a) DAP
b) Urea
c) Muriate of potash
d) TSP

26. What is the estimated extent of salt affected soils in India?
a) 5.42 mha
b) 7.42 mha
c) 11.42 mha
d) 17.42 mha

27. Which of the following is not a feature of watershed?
a) Hydrological unit
b) Biophysical unit
c) Socio-economic unit
d) Production unit

28. Correlation coefficient 'r' lies between
a) 0 and 1
b) -1 and 1
c) -1 and 0
d) 0 and ∞

29. For the data 1, -2, 4, geometric mean is
a) 2
b) 4
c) $-\dfrac{7}{3}$
d) -2

30. The relationship between Arithmetic mean (A), Harmonic mean (H) and Geometric mean (G) is
a) $G^2=AH$
b) $G=\sqrt{A+H}$
c) $H^2=GA$
d) $A^2=GH$

PART – II (Subject Paper)
Multiple choice questions (No. 31 to 130). Choose the correct answer (*a, b, c* or *d*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

31. Identify the threat to internal validity of an experiment
a) Statistical regression
b) Attrition
c) Instrumentation
d) All of the above

32. When we cannot separate the effects of independent variables from possible effects of extraneous variables, we say that the effects are
a) Regressed
b) Confounded
c) Counterbalanced
d) None of the above

33. Panel studies can
a) Identify which variables are changing over time
b) Reveal which individuals are changing over time
c) Describe transaction flows in a network
d) Identify cohorts

34. Which training orientation has the feature of providing opportunity to gain insight and skill from direct experience?
a) Academic
b) Laboratory
c) Activity
d) Organizational development

35. The study or science of signs is known as
a) Semiotics
b) Semantics
c) Syndicate
d) Syntactic

36. Vignette technique is related with
a) People's normative judgments
b) Pre-testing of questionnaire
c) Testing of reliability of an instrument
d) Social network

37. Awareness of being tested is known as
a) Placebo effect
b) Guinea pig effect
c) Regression effect
d) None of the above

38. Pearson's 'r' is a method of examining relationship between
a) Ordinal variables
b) Interval/ratio variables
c) One ordinal and other interval variables
d) Nominal variables

39. If people of different incomes vary in their political attitudes, which in turn have implications for their voting behaviour, then political attitudes would be
a) Active variable
b) Categorical variable
c) Intervening variable
d) All of the above

40. Project is defined as
a) Non-routine time bound activity
b) Regular and on-going activity
c) Regular activity with limited focus towards resources
d) Activity with major focus on objectives and clientele

41. Which of the following theories says, "in an organization people need to be motivated"?
a) Theory X
b) Theory Y
c) Theory Z
d) Theory of scientific management

42. Which of the following organizations bears the greatest risk?
a) Pussy cat
b) Fat cat
c) Tiger
d) Non-governmental organizations

43. Which of the following effectively links together trainees and trainers who are geographically isolated?
a) Video conferencing
b) Local call
c) Call centre
d) Radio talk

44. Arrange these programmes in a chronological order of their inception year
    i) Firka Development Scheme
    ii) GMFC (Grow More Food Campaign)
    iii) DDP (Desert Development Programme)
    iv) T&V
a) i, ii, iv, iii
b) i, ii, iii, iv
c) ii, i, iii, iv
d) ii, i, iv, iii

45. Study of human behaviour in relation to other people with whom he interacts means
a) Psychology
b) Sociology
c) Social psychology
d) Anthropology

46. Which of the following seeks to isolate factor which will account for most of the variability from a set of variables?
a) Content analysis
b) Factor analysis
c) Path analysis
d) ANOVA

47. "Enter in room after removal of shoes" is an example of
a) Folkways
b) Mores
c) Norms
d) Values

48. Process of mutual cultural diffusion through which persons and groups become culturally alike is called
a) Assimilation
b) Accommodation
c) Acculturation
d) Conflict

49. Sampling error is
a) Difference between number/answer given by respondent and the true correct answer
b) Difference between true value of data collected and population
c) Standard deviation of sample distribution
d) Error in sampling from population

50. Spatial sampling includes respondents
a) Selected from villages
b) Selected from urban/peri-urban areas
c) Representing certain groups
d) Which move from one place to another

51. The hypothesis which does not clarify the cause and effect relationship is termed as
a) Alternate hypothesis
b) Symmetrical hypothesis
c) Null hypothesis
d) Descriptive hypothesis

52. Which of the following is not true about PERT?
a) PERT is event oriented
b) Deterministic model
c) Time oriented
d) Calculates expected value of time duration

53. Which of the following is a method of changing behaviour by instruction?
a) T-group training
b) Role playing
c) Fish-bone exercise
d) Transactional analysis

54. Principles of management (POSDCORB) has been given by
a) Elton Mayo
b) Henry Fayol
c) Luther Gullick
d) Frederick Taylor

55. "The India's Food Crisis and Steps to Meet It" was the name of the report submitted by
a) Royal Commission
b) Ford Foundation
c) Fiscal Commission
d) Rocke Feller Foundation

56. Span of control is associated with which of the following?
a) Group approach
b) Managing sub-ordinates
c) Feedback
d) Mass approach

57. When information of the message is totally changed, it is called
a) Systematic distortion
b) Stretch distortion
c) Fog distortion
d) Mirage distortion

58. Lack of norm/rule is called
a) Harmony
b) Anomie
c) Chaos
d) Lawlessness

59. Concept of VLW first evolved from
a) Etawah Pilot Project
b) Community Development Programme
c) Gurgaon Project
d) National Extension Service

60. The basic feature of scientific approach is
a) Imagination
b) By-chance
c) Intuition
d) Objectivity

61. Sarvodaya Movement has been started by
a) A.T. Mosher
b) G.R. Gokhale
c) Vinoba Bhave
d) Sir Daniel Hamilton

62. The first EEI in India was established at
a) Nilokheri
b) Hyderabad
c) Jorhat
d) Chennai

63. If a sample is selected according to probability sampling technique and the sample mean score is 9.7 and standard error of the mean is 1.3, then one can be 95 per cent certain that the population mean will be
a) $9.7 + (1.96 \times 1.3)$
b) $9.7 - (1.96 \times 1.3)$
c) Between $9.7 + (1.96 \times 1.3)$ and $9.7 - (1.96 \times 1.3)$
d) $(9.7 \times 1.96) / 1.3$

64. The oldest diffusion research tradition belongs to
a) Sociology
b) Anthropology
c) Geography
d) Extension

65. Two factor theory of motivation was given by
a) Hertzberg
b) Maslow
c) Karl Marx
d) Max Weber

66. Encoding skills are
a) Speaking and listening
b) Speaking and reading
c) Speaking and writing
d) Speaking and reassuming

67. When a farmer is line sowing his wheat crop under the supervision of an extension worker, what experience is he undergoing?
a) Symbolic experience
b) Supervisory experience
c) Iconic experience
d) Enactive experience

68. COIK fallacy expands to
a) Communication oriented intelligence and knowledge
b) Cannot oppose intellect and knowledge
c) Communication organization intelligence and knowledge
d) Clear only if known

69. SWOT is basically a tool for
a) Decision making
b) Leading
c) Controlling
d) Motivating

70. Cyclic model of training was developed by
a) Lynton and Pareek
b) Miller R.D.
c) Yark A.
d) Reay D.G.

71. Non-verbal communication based on touch is called
a) Haptics
b) Kinesis
c) Cronimics
d) Oculesics

72. IVLP stands for
a) International Village Linkage Programme
b) Institute Village Link Programme
c) Institute Village Linkage Programme
d) Institute Village Link Project

73. 'Skeptical' refers to
a) Innovators
b) Early adopters
c) Early majority
d) Late majority

74. Sociology is a "value free science", who said it
a) Arnold Toynbee
b) R.N. Mukherjee
c) Julion Huxley
d) Max Weber

75. The social philosopher who gave the term 'group dynamics'
a) Yogendra Singh
b) Emile Durkheim
c) August Comte
d) Kurt Lewin

76. The state when the rate of change in a social system is commensurate with the system's ability to cope with it is known as
a) Stable equilibrium
b) Dynamic equilibrium
c) Disequilibrium
d) Unstable equilibrium

77. Who has defined leadership as a behaviour that affects the behaviour of others more than their behaviour affects that of a leader?
a) La-Piere
b) H.T. Mazumdar
c) Libb
d) Seckler-Hudson

78. Selection of a course of action from among the alternatives is called
a) Planning
b) Decision making
c) Controlling
d) Leading

79. The highest quality organization is
a) Transcendental
b) Mutualistic
c) Parasitic
d) Accidental

80. Sociometry technique was developed by
a) Kurt Lewin
b) Louis Dumont
c) Robert Redfield
d) J.L. Moreno

81. Community spirit is the chief characteristic of
a) Geminschaft
b) Gesselschaft
c) Society
d) Organization

82. Who gave the term folkways?
a) F. Tonnies
b) W.G. Sumner
c) E. Ross
d) Talcott Parsons

83. *Camera obscura* means
a) Darkened room
b) Lightened room
c) Open room
d) Small room

84. Film frame size comes in a variety of ranges, the most widely used is
a) 65 mm format
b) 55 mm format
c) 45 mm format
d) 35 mm format

85. Extension programme is a statement of
a) Situations
b) Objectives
c) Solutions
d) All of the above

86. First paragraph of a news story is known as
a) Body
b) Lead
c) Tail
d) Prelude

87. Treating abstractions as if they were actual phenomena is termed as
a) Fallacy of reification
b) Theoretical fallacy
c) Ecological fallacy
d) None of the above

88. The wholeness of cases in case study could be preserved by
a) Breadth of data
b) Levels of data
c) Formation of indices and types
d) All of the above

89. What is incorrect about hypothesis?
a) It has empirical referents
b) It is related to a body of theory
c) It is related to available techniques
d) It must be general

90. Which of the following is incorrect?
a) Fact initiates theory
b) Theory predicts facts
c) Facts redefine and clarify theory
d) Facts completely determine theory

91. When an extension worker talks about a crop's varietal characteristics, farmers learn through
a) Mere hearing
b) Abstractions
c) Practice
d) Memory

92. Heuristic view in science stresses
a) Problem solving
b) Body of facts
c) Activity
d) Stereotype

93. One-tailed and two-tailed tests differ in the
a) Location of the region of rejection
b) Size of the region of rejection
c) Both a) & b)
d) None of the above

94. The process of arranging situation in which the important things to be learned, are called to the attention of learners, their interest developed, desire aroused and action promoted is known as
a) Training
b) Learning
c) Learning situation
d) Teaching

95. 'Mazdoor Manzils' was the brain child of
a) J.P. Narayan
b) S.K. Dey
c) Nanajee Deshmukh
d) A.R. Desai

96. Core of extension is
a) Development of man
b) Development of family
c) Development of man and his environment
d) All of the above

97. Two main features of a good layout is
a) Balance and emphasis
b) Balance and attraction
c) Balance and crisp
d) Balance and specific

98. Cluster sampling is a
a) Non-probability sampling
b) Quota sampling
c) Random sampling
d) Probability sampling

99. ABC of poster
a) Attractive, brief, clear
b) Attractive, bold, clear
c) Accuracy, brief, clear
d) Accuracy, bold, clear

100. T&V system originated in
a) Bangladesh
b) Israel
c) England
d) Turkey

101. In judging the validity of an instrument, what is incorrect about valid variance?
a) Shares variance with other measures
b) Includes variance due to error
c) Does not include variance specific to the measure
d) Does not share variance with other measures

102. Training basically is not a
a) Overt process
b) Covert process
c) Communication process
d) Learning process

103. Evolutionary theory of social change is
a) Linear
b) Cyclical
c) Zigzag
d) Progression in straight line

104. A hypothesis is essentially a
a) Interrogative statement
b) Empirical statement
c) Relational proposition
d) Generally held view

105. On the occasion of ICAR Golden Jubilee celebration, which of the following was launched?
a) KVK
b) ORP
c) T&V
d) LLP

106. The earliest edition of the newspaper is known as
a) Morning edition
b) First edition
c) Bull dog
d) City edition

107. The literal meaning of the word management is
a) Personal administration
b) House keeping
c) Store keeping
d) Policy making

108. Lack of faith in government system is called
a) Cynicism
b) Misanthropism
c) Atropism
d) Normlessness

109. A French social philosopher who gave sociology its name and who stressed the need to base scientific theories on observation was
a) Sir Henry Maine
b) Emile Durkheim
c) August Comte
d) Herbert Spencer

110. It helps direct the eyes of the viewer in a natural way towards the important parts of the photo
a) Rule of one
b) Rule of two
c) Rule of third
d) Rule of four

111. Simulation method does not include
a) In basket exercise
b) Role play
c) Business games
d) Brain storming

112. "Concentration Principle" in deploying the resources and Trickle down theory were the hallmarks of
a) CDP
b) IRDP
c) IADP
d) HADP

113. The level of adoption of any innovation at which the S-shaped curve takes off is
a) 0-5%
b) 10-25%
c) 40-50%
d) 60-80%

114. Double-barreled questions in an interview schedule are
a) Important to seek in-depth information
b) Generally required to probe value-orientation
c) Ambiguous as they provide more frames of references
d) Generally open-end questions

115. Attempt to identify and remedy shortcomings during the development state of a program is called as
a) Informal evaluation
b) Summative evaluation
c) Formative evaluation
d) *Ex-ante* evaluation

116. James-Lange theory of emotion states that
a) Emotional experience occurs after the bodily changes
b) Felt emotions and bodily reactions in emotion are independent of each other
c) Emotion we feel is due to our interpretation of an aroused bodily state
d) Emotion we feel results from appraisals

117. Sociogram refers to
a) A unit of weight on sociometric scale
b) A diagram of group structure
c) Economic programme of urban society
d) A telegraphic message sent to a group

118. The time element is distinctive in the process of
a) Communication
b) Diffusion
c) Adoption
d) Interaction

119. The special treatment given to a first born child by his parents refers to
a) Status ascribed to him
b) Privilege given to him
c) Esteem given to him
d) Custom of the society

120. Asymmetry of frequency distribution is
a) Skewness
b) Normal
c) Poisson
d) Binomial

121. In Prochaska's five stages-of-change model, which is not included?
a) Pre-contemplation
b) Contemplation
c) Maintenance
d) Dissonance

122. In expansion of 4-H club, one 'H' does not stand for
a) HEAD
b) HAPPINESS
c) HEALTH
d) HAND

123. The degree to which an individual acts as an opinion leader for a variety of topics is known as
a) Monomorphism
b) Polymorphism
c) Polysemous
d) Homophilous

124. "Deliberation" has been advocated as an important stage in innovation decision process by
a) Rogers & Shoemaker
b) Prochaska
c) Singh & Pareek
d) Kurt Lewin

125. The philosophy of 'Management by Objectives' is primarily built on the concepts of
a) Self-control and self-direction
b) Reward system
c) Organisational structure
d) Leadership styles

126. General statements or understandings that channel thinking in decision-making
a) Rules
b) Strategy
c) Tactics
d) Policy

127. 'Programmed Instruction' is a method of
a) Individual training
b) Group training
c) Mass training
d) Class training

128. In equal appearing interval method of scale construction, the statements having the following quality are selected
a) Inter-quartile range should be high
b) Inter-quartile range should be low
c) Scale value should be equal to inter-quartile range
d) Scale value should be higher than the inter-quartile range

129. If the coefficient of determination is 0.64, the coefficient of correlation will be
a) 0.8
b) 0.16
c) 0.32
d) 0.36

130. An extension programme has been planned with an emphasis on improving the production of cotton by providing an integrated extension service. The above programme follows
a) The commodity specialized approach
b) The T&V system approach
c) The participatory approach
d) All of the above

Matching type questions (No. 131 to 140); all questions carry equal marks. Choose the correct answer (*a, b, c, d* or *e*) for each sub-question (*i, ii, iii, iv* and *v*) and enter your choice in the circle (by shading with a pencil) on the OMR - answer sheet as per the instructions given on the answer sheet.

131.
i) Malcolm Knowles   a) Philosophy of Extension Education
ii) Paolo Freire   b) Theories of adult learning
iii) Daniel Benor   c) Result demonstration
iv) Kelsey & Hearne   d) Conscientization
v) Seaman A. Knapp   e) T&V approach

132.
i) Guttenberg   a) Readability test
ii) Edgar Dale   b) Audience response
iii) Rudolph Flesck   c) Fog index
iv) J.P. Leagans   d) Cone of experience
v) Robert Gunning   e) Printing press

133.
i) Coefficient of concordance (W)   a) Goodness of the fit of distributions
ii) Kolmogorov-Smirnov test   b) One-way analysis of variance
iii) Kruskal-Wallis test   c) Degree of agreement over coding of items
iv) Yule's Q   d) Association of ranks
v) Cohen's Kappa   e) Measure of Association

134.
i) Man-to-Man   a) Shantiniketan
ii) Sondeo   b) Cultural Shock
iii) Benett   c) Ratings
iv) Oberg   d) Hierarchical level of evidence
v) Brati Balika   e) Farmer First Approach

135.
i) Maslow   a) Field Theory
ii) Pavlov   b) Summated rating scale
iii) Thurstone   c) Need hierarchy
iv) Likert   d) Equal appearing interval
v) Kurt Lewin   e) Conditioned learning

136.
i) IADP   a) Targetted approach
ii) IRDP   b) Package programme
iii) NREP   c) Employment generation
iv) SFDA   d) Poverty alleviation
v) DWCRA   e) Welfare approach

137.
i) Instructional method   a) Sharp
ii) Intelligence   b) Thorndike
iii) Credibility   c) Stanford-Binet
iv) Consequences of innovation   d) Hovland
v) Culture lag   e) Ogburn

138.
i) Social learning   a) Granovetter
ii) Strength of weak ties   b) George Simmel
iii) Social distance   c) Hagerstrand
iv) Neighbourhood effect   d) Coleman
v) Drug diffusion   e) Albert Bandura

139.
Book   Author
i) Psychometric Methods   a) L.C. Jain
ii) India's Villages   b) Guilford
iii) Farmer First Revisited   c) Agrawal and Narain
iv) Grass Without Roots: Rural Development Under Government Auspices   d) Scoones and Thompson
v) Dying Wisdom   e) Srinivas

140.
i) Transactional Analysis   a) Country Club
ii) Johari's Window   b) Self-fulfilling Prophecy
iii) Managerial Grid   c) Parent, Adult, Child
iv) General Adaptation Syndrome   d) Blind area
v) Pygmalion Effect   e) Stress

Short questions (No. 141 to 146); each question carries FIVE marks. Write answers, including computation / mathematical calculations if any, in the space provided for each question on the question paper itself.

141. What do you mean by Andragogy? Are andragogy and pedagogy different? Explain. Describe andragogical process stepwise.

142. Describe the core characteristics of Farming System Research & Extension (FSR&E).

143. Describe the salient threats to internal validity of an experiment.

144. What is training? Describe Spiral model of training process.

145. Enumerate the eight approaches of extension as classified by Axin and describe the strength and weaknesses of anyone.

146. Describe the major elements of diffusion process and the short-comings of diffusion research.