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Objective Plant Pathology

(A competitive examination guide)- As per Indian examination pattern

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PREFACE

The so called book Objective Plant Pathology is compiled by collecting and digesting the pertinent information published in various books and review papers to assist graduate and postgraduate students for various competitive examinations like JRF, NET, ARS conducted by ICAR. It is mainly helpful for students for getting an in-depth knowledge in plant pathology. The book combines the basic concepts and terminology in Mycology, Bacteriology, Virology and other applied aspects. There is a series of model questions designed to provoke individual thought and critical examination of their memory to retain the conceptual ideas of the subject. There would be a continuous effort on the part of the authors to revise, update and modify the contents of the book. The authors are deeply thankful to individuals, who helped on time for successful preparation of this book.

M.GURIVI REDDY

S.R.PRABHUKARTHIKEYAN

R.SURENDRANATH

MODEL PAPER-1

1. Phylum Plasmodiophoromycetes (Lower fungi) belong to kingdom
a) Chromista b) Protozoa c) Eumycota d) Mycota
2. The cell wall of the mycelium of true fungi (Eumycota) contains
a) Glucan + cellulose b) Glucan + chitin c) Glucan d) Peptidoglycon
3. *Mycosphaerella musicola* produces asci within
a) Perithecium b) Apothecium c) Locules d) Clestothecium
4. The teleomorphic stage of *Cercospora* is
a) Glomorella b) Cochliobolus c) *Mycosphaerella* d) Pleospora
5. Fungi belonging to order Sphaeropsidales produces conidia in
a) Pycnidium b) Acervulus c) Synemmata d) Sporodochium
6. Parasexuality was first discovered by
a) Pontecarvo b) Erikson c) De Bary d) Robert Koch
7. The total mass of nucleoprotein of different virus particles vary from
a) 1-3 million Da b) 4.6 to 73 million Da c) 50-100 million Da d) 10-40 million Da
8. An example of virus containing ds DNA
a) Caulimovirus b) Gemini virus c) Tobravirus d) Potyvirus
9. The protein subunits of TMV consists of
a) 260 amino acids b) 58 amino acids c) 158 amino acids d) 200 amino acids
10. Multiplication of virus occurs in
a) Epidermal cells b) Plasmodesmata c) Phloem vessels d) xylem vessels
11. In the peptidoglycon of the bacterial cell wall the two sugar molecules are connected by
a) Peptide Cross links b) Glycosidic bond c) H-bond d) S-H bond
12. Porins are present in bacterial cell wall component
a) LPS layer b) EPS layer c) Cytoplasmic membrane d) Plasma membrane
13. Dolipore septum is found in
a) ascomycetes b) zygomycetes c) basidiomycetes d) deuteromycetes
14. A computer software system called Field Runner is used to
a) Measuring chlorophyll content in infected plant
b) Recording the flight of insect vectors
c) Sampling plants for disease
d) Measuring photosynthetic rate of plants
15. Isomerase enzyme patterns in fungal cell is used for
a) Differentiating races b) Differentiating strains (Biotypes)

- c) Measuring spore density d) Differentiating species
16. Remote sensing for detecting and controlling disease severity is used in the following altitudes
- a) 2 b) 3 c) 5 d) 6
17. The computerized disease assessment training programme is
- a) DISTRAIN b) LOPAT c) DAS-ELISA d) EPIDEM
18. Measuring the size of the minute objects (spores) in a microscope is known as
- a) Pathometry b) Micrometry c) Turbidometry d) Microtomy
19. Nutritionally, fungi may be best characterized as
- a) photosynthetic autotrophs b) chemosynthetic autotrophs
c) absorptive heterotrophs d) ingestive heterotrophs
20. Viruses enter the plant cells through the process of
- a) Osmosis b) Pinocytosis c) Diffusion d) Plasmolysis
21. Sugarcane ratoon stunting is caused by
- a) Phytoplasmas b) Viroids c) *Cavibacter xyli* sub sp *xyli* d) Virus
22. Blotter test is used in
- a) Seed health testing b) Seed viability c) Seed purity test d) Seed rate
23. Hyperplasia refers to
- a) Increased cell division b) Cell death c) Cell enlargement d) Decreased cell division
24. An internally seed borne fungal disease
- a) Smut of Ragi b) Red rot of Sugarcane c) Loose smut of Wheat d) Grain smut of Jowar
25. An example of a soil fumigant
- a) Thiram b) Methyl bromide c) Bavistin d) Vitavax
26. Significant contribution on the epidemiology of disease cycle of stem rust of Wheat was made by
- a) Mehta. K.C b) Mundkur. B.B c) Payak.M.M d) Nagarajan
27. Moko disease of Banana is caused by
- a) *Fusarium oxysporium* f sp. *Cubense* b) *Radopholus similis*
c) *Ralstonia solanacearum* d) *Pentalonia nigranervosa*
28. Blast of Rice is caused by
- a) *Magnaporthe grisea* b) *Drechslera oryzae* c) *Ephelis oryzae* d) *Rhizoctonia solani*
29. The number of races of *Phytophthora infestans* prevalent in India is
- a) 250 b) 82 c) 5 d) 130

30. Effective fungicide for the control of blast disease of Rice
a) Mancozeb b) Tricyclazole c) Fosteyl Al d) Plantvax
31. Fungus with dichotomously branched sporangiophores at acute angles with curved pointed tips on which conidia are borne belong to
a) Perenospora b) Pesedoperenospora c) Bremia d) Sclerospora
32. Cleistothecium containing several asci bearing definite rigid appendages with coiled tips is characteristic of genus
a) Uncinula b) Erysiphe c) Sphaerotheca d) Phyllactinia
33. Diseases which interferes with the conduction of water in plants
a) Wilts b) Rots c) Leaf spots d) Damping off
34. Tumours/galls induced by *Agrobacterium tumefaciens* occur due to
a) Cytokinin production b) Harmonal imbalance
c) Production of Agrocin-84 d) Enzymes
35. Gemini viruses contain
a) ds RNA b) ss DNA c) ds DNA d) ss RNA
36. Phytoplasmas contain
a) RNA only b) DNA only c) RNA+ DNA d) RNA or DNA
37. Bacterial cell wall is made up of
a) Peptidoglycon b) Chitin c) Flagellin d) Lipopolysaccharide
38. The genetic material in a bacterial cell is
a) A nucleoid region b) Definite nucleus c) Mitochondria d) Mesosome
39. Gamme is found in the members of
a) saprolegniales b) chytridiales c) plasmodiophorales d) lagenidiales
40. Agrocin-84 is a
a) Antibiotic b) Bacteriocin c) Phenolic compound d) Enzyme
41. International Mycological Institute is located at
a) England b) USA c) Netherlands d) India
42. The most significant reason why fungi are not in the kingdom Plantae is that fungi
a) are chemoorganotrophic heterotrophs b) are procaryotes
c) have unicellular and multi-cellular forms d) are eucaryotes
43. Brine floatation method is followed to control
a) Loose Smut of Wheat b) Tundu disease of Wheat c) Grain smut of Jowar d) Rice blast
44. MLO and Spiroplasma are mostly
a) Xylem inhibiting b) Phloem inhibiting c) Both (a) and (b) d) Stomata inhibiting

45. Panama disease of banana is caused by
 a) *Fusarium oxysporium* f sp. *Cubense* b) *Ralstonia solanacearum*
 c) *Radopholus similis* d) *Pentalonia nigranervosa*
46. Flagellation in *Pseudomonas*
 a) Lophotrichous b) Monotrichous c) Peritrichous d) Amphitrichous
47. *Hemelia vastatrix* causes
 a) Bean rust b) Coffee leaf rust c) Yellow rust of wheat d) Sunflower rust
48. The number of races of *Hemelia vastatrix* recorded in the World
 a) 32 b) 8 c) 4 d) 24
49. Nonmotile spores are characteristics of-
 a) Zygomycetes b) Chytridiomycetes c) Myxomycetes d) Oomycetes
50. Internally seed borne bacterial disease
 a) Black rot of cabbage b) Soft rot of carrot c) Pierce disease of Grapes d) Citrus canker
51. NEPO viruses are transmitted by
 a) *Xiphinema index* b) *Trichodorus sp* c) *Pythium ultimum* d) Meloidogyne
52. Potato spindle tuber disease is caused by
 a) Viroid b) Phytoplasma c) Spiroplasma d) Virus
53. Most widely used fungicide for rust fungi
 a) Vitavax b) Plantvax c) Bavistin d) Dithane M-45
54. Which spore is on a club and results from the fusion of two nuclei from different strains of the same fungi?
 a) Ascospore b) basidiospore c) blastospore d) conidiospore
55. Streptomycin antibiotic affect
 a) Protein synthesis b) Nucleic acid synthesis c) Electron transport d) Mitochondria
56. Hypersensitive reaction occurs due to
 a) Accumulation of Phytoalexins b) Action of host specific toxin
 c) Action of pectolytic enzymes d) Accumulation of Phytoanticipins
57. Parasexuality occurs
 a) within heterokaryotic hyphae b) between dikaryotic hyphae
 c) between homokaryotic hyphae d) between heterokaryotic hyphae
58. The Indian Phytopathological society was started by
 a) B.B.Mundkur b) Coleman c) E.J.Butler d) Kirtikar
59. Purification of TMV in crystalline form by
 a) Stanley b) Bawden c) Gibbs and Harrison d) Albert Mayer

60. Monograph on the Genus *Fusarium* is authored by
a) C.Booth b) C.J.Alexopolous c) E.Subramaniam d) E.Chupp
61. Basidiospores are borne on the ends of
a) primary mycelia b) basidiocarps c) trichogynes d) sterigmata
62. Host plant on which Wheat rust fungus produces telial stage is known as
a) Alternate host b) Primary host c) Collateral host d) Secondary host
63. NETU viruses are transmitted by
a) *Xiphinema* b) *Trichodorus* c) Longidorous d) Paralongidorus
64. Stylet-borne viruses are
a) Non persistent b) Circulative c) Persistent d) Propagative
65. Who advanced the Gene for gene concept of disease and resistance and susceptibility
a) Biffen and Orton b) Flor c) Vander plank d) Gaumann
66. Fungi causing Downy mildew diseases are differentiated on the basis of
a) Sporangiophore character and germination of sporangia b) Teliospore characters
c) Appendages attached to the cleistothecia d) Conidia characters
67. Most of the Plant viruses contain
a) RNA b) DNA c) Both RNA + DNA d) None
68. The famous Irish famine of 1842 was caused due to the outbreak of
a) Helminthosporiose of rice b) Stem rust of Wheat
c) Late blight of potato d) Downy mildew of Grapes
69. Sulphur fungicides are very effective in the control of
a) Anthracnose disease b) Powdery mildews c) Wilts d) Downy mildews
70. Concentration of sodium chloride used for sterilisation
a) 0.1% b) 10% c) 0.5% d) 1 %
71. Ragi variety resistant to neck blast
a) GPU-28 b) Indaf-9 c) Indaf-5 d) MTU-22
72. Oomycetes are distinguished from fungi by all of the characteristics below except
a) source of nutrition b) spore motility c) cellulose walls d) pattern of mitosis
73. Fungal hyphae with two genetically distinct nuclei are said to be
a) heterokaryotic b) monokaryotic c) dikaryotic d) karyotic
74. Bunchy top of Banana is transmitted by
a) *Bemisia tabaci* b) *Pentalonia nigranervosa* c) *Myzus persicae* d) *Aphis gossypii*
75. A typical long cycled rust fungus produces during its life cycle

- a) 5 spore forms b) 2 spore forms c) 4 spore forms d) 3 spore forms
76. *Puccinia graminis tritici* produces the following spore form on *Barberry vulgaris*
 a) Pycnia + Aecia b) Only aecia c) Only pycnia d) Uredial + Telial
77. The main source of inoculum for *Xanthomonas citri pv. citri* causing citrus canker
 a) Bacteria present in soil in infected plant parts b) Bacteria carried through seeds
 c) Infected twigs and old lesions on the standing tree d) Alternate host
78. *Erwinia caratovora* sub sp *caratovora* causing soft rot of vegetables produces
 a) Pectolytic enzymes b) Growth hormones c) Toxins d) Polysaccharides
79. The number of races of *Ralstonia solanacearum* recorded in the World
 a) 5 b) 2 c) 3 d) 8
80. *Agrobacterium tumefaciens* enters the plants through
 a) Stomata b) Wounds c) leaf hairs d) Hydathodes
81. Systemic fungicide used for the control of Powdery mildew disease
 a) Calixin b) Vitavax c) Sulphur dust d) Bavistin
82. Late blight of potato can be controlled by spraying
 a) Ridomil MZ b) Dithane Z-78 c) Captan d) Ipridione
83. Seed treatment fungicide for the control Downy mildew disease of Sunflower
 a) Apron 35 SD b) Sulphur wettable powder c) Thiram d) Plantvax
84. Tomato leaf curl can be controlled by spraying
 a) Mancozeb b) Triazophos (Hostathion) c) Ridomil MZ d) Tricyclazole
85. Blast of paddy is caused by
 a) *Pyricularia oryzae* b) *Drechslera oryzae* c) *Ephelis oryzae* d) *Sclerotium oryzae*
86. Biocontrol agent used for the control of Collar rot of plants caused by *Rhizoctonia solani*
 a) *Pasteuria penetrans* b) *Pseudomonas fluorescens*
 c) *Trichoderma virida* d) *Bacillus subtilis*
87. The term Virus was coined by
 a) Adolf Meyer b) Stanley c) Beijerinck d) Ivanowski
88. Bacteriophage is
 a) Naked single stranded RNA particle b) A Virus infecting bacteria
 c) A virus infecting eukaryotic cell d) Animal virus
89. A virus particle is composed of
 a) Only nucleic acid b) only protein c) Nucleic acid+ protein d) Nucleic acid or protein
90. Bacteriophages are used for forecasting the incidence of
 a) Tungro disease of Rice b) Bacterial blight of Paddy
 c) Blast of Paddy d) Brown spot of rice

91. Phytoplasmas are transmitted in nature through insect vectors
a) Mites b) Plant hoppers c) Aphids d) Leaf hoppers
92. The fruiting body of a mushroom is called
a) sorocarps b) basidiocarps c) ascocarps d) plasmodiocarp
93. Solar heat treatment of seeds is recommended for the control of
a) False smut of Paddy b) loose smut of Wheat
c) Downy mildew of ragi d) Grain smut of sorghum
94. The fungus responsible for ergotism belongs to which of the following fungal divisions?
a) Ascomycota b) Basidiomycota c) Deuteromycota d) Zygomycota
95. Water molds belong to which division?
a) Ascomycota b) Basidiomycota c) Chytridiomycota d) Oomycota
96. Late blight of Potato is caused by
a) *Alternaria solani* b) *Phytophthora infestans*
c) *Synchytrium endobioticum* d) *Septoria lycopersici*
97. *Ralstonia solanacearum* causes
a) Wilting of tomato b) Tomato leaf curl c) Bunchy top of Banana d) Soft rot of potato
98. *Barbery vulgaris* is the alternative host for
a) *Hemelia vastatrix* b) *Puccinia recondita* c) *Puccinia graminis tritici* d) *Melampsora lini*
99. Which of the following is not a kingdom in the five kingdom system
a) monera b) algae c) protista d) plant
100. A simple spherical shape describes a bacterial cell known as
a) coccus b) vibrio c) bacillus d) spiral

MODEL PAPER-2

1. A systemic fungicide used for the control of blast of Paddy
a) Ridomil b) Alliete c) Beam d) Contof
2. The simplest technique for isolating bacteria in growth media is referred to as the
a) pour plate method b) streak plate method
c) serial dilution method d) MPN method
3. Primary source of inoculum for Angular leaf spot of cotton
a) Seed borne bacterium b) Bacteria present in soil
c) Bacteria transmitted through insect vectors d) Alternate host
4. *Agrobacterium tumefaciens* induces
a) Galls/tumours b) Soft rot c) Leaf spot d) Wilt
5. Effective control for Katte disease of Cardamom is
a) Eradication and burning of affected clumps b) Spraying of systemic fungicide
c) Application of *Trichoderma viridae* to soil d) Destruction of alternate host
6. Khaira disease of Paddy is due to the deficiency of
a) Zinc deficiency b) Phanerogams c) Boron deficiency d) *Cuscuta*
7. Which of the following is not a DNA virus?
a) luteovirus b) caulimovirus c) geminivirus d) begomovirus
8. The sexual spore produced by Downy mildew fungus is
a) Oospore b) Zygosporangium c) Ascospore d) Basidiospore
9. Antibiotic used to control bacterial diseases of plants
a) Streptomycin b) Aureofungin c) Blasticidin d) Chloropicrin
10. Cell wall of fungi belonging to ascomycetes contains
a) Chitin b) Cellulose c) Peptidoglycan d) Polysaccharide
11. The number of ascospore produced in a typical asci are
a) 4 b) 8 c) innumerable d) 12
12. Black mold fungus usually refers to
a) *Penicillium digitatum* b) *Rhizopus spp* c) *Aspergillus niger* d) *Aspergillus flavus*
13. Fungal nucleolus consist mostly of
a) RNA b) DNA c) Both RNA and DNA d) Proteins
14. The perfect stage of *Aspergillus nidulans* is
a) Emericella b) Eurotium c) *Sartoria* d) *Talaromyces*

15. Demi cyclic rust fungus lack
a) Uredial stage b) Telial stage c) Aecial stage d) Pycnial
16. Typical conditions used for sterilization are
a) 100° C for 10 minutes b) 121° C at 15 psi for 15 minutes
c) 80° C for 15 minutes d) 176° C for 15 seconds
17. Fungus producing conidia either in Pycnidia or acervuli belong to
a) Hypomycetidae b) Coelomycetidae c) Blastomycetidae d) None of the above
18. Dictyospora is a spore with
a) Only horizontal septa b) Only vertical septa
c) Both horizontal and vertical septa d) No septa
19. The first expert (Advisory) system in Plant Pathology was developed in USA in the year
a) 1983 b) 1996 c) 2000 d) 1986
20. The maximum tolerance level for potato leaf roll virus in certified seed potatoes is
a) 0.5-1.0% b) 1-2 % c) 1.5-2.0% d) < 0.5%
21. A fungicide which does not belong to Triazole group is
a) Bayleton b) Tilt c) Ethazol d) Vitavax
22. Powdery mildew diseases are effectively controlled by spraying
a) Rubigon b) Oxycarboxin(plantavax) c) Fosetyl-Al d) Ridomil-MZ
23. inclusion bodies found in
a) poty virus b) tobamo virus c) cucumber virus d) rhabdovirus
24. A sterol inhibiting fungicide is
a) Kitazin b) Prochloroz c) Ipridione d) Plantvax
25. Benzimidazole fungicides interfere with
a) Chitin synthesis b) Nuclear division
c) Mitochondrial respiration d) Electron transport
26. The teliospores of *Sphacelotheca sorghi* causing grain smut of sorghum can remain viable for
a) 2 year b) 4 years c) 13 years d) < 1 year
27. Fungi with coenocytic hyaline mycelium producing sporangiophores similar to vegetative hyphae or if different than o f indefinite growth belong to family
a) Pythiaceae b) Perenosporaceae c) Albuginaceae d) Mucoraceae

28. Hallucinogenic chemicals are produced by
a) actinomycetes b) basidiomycetes c) ascomycetes d) zygomycetes
29. Mycoplasmas differ from viruses is that they are sensitive to
a) penicillin b) tetracycline c) sugars d) amino acids
30. Genetic recombination occurs in bacteria through the transfer of
a) pili b) plasmids c) endospores d) autospores
31. MLO's (Phytoplasmas) in plant system were translocated through
a) Phloem sieve tubes b) Xylem vessels
c) Cambium tissues d) Plasmodesmata connections
32. The total amount of DNA in the chromosomes of a bacterium *viz Escherichia coli* is about
a) 9800 kilobase b) 4700 kilobase c) 100 kilobase d) 800 kilobase
33. The thickness of the plasma membrane of bacterial cell is
a) 8 nm b) 20 nm c) 5 nm d) 17 nm
34. N-Acetylglucosaminoacid and N-acetyl muramic acid in the peptidoglycon unit is linked by
a) β 1, 4- glycosidic bond b) Interpeptide linkage c) Phosphate bond d) S-H bond
35. Gram positive bacteria belonging to the group
a) gracillicute b) firmicute c) tenevicutes d) mendosicutes
36. Fungi belonging to order Melonconiales produce conidia within
a) Pycnidium b) Acervulus c) Sporodochium d) Synemmata
37. Genus *Alternaria* belong to family
a) Tuberculariaceae b) Moniliaceae c) Dematiaceae d) None
38. Tyndalisation is carried at
a) 100⁰C for 10min on 3 days b) 100⁰C for 20min on 2 days
c) 110⁰C for 20min on 3 days d) 100⁰C for 20min on 3 days
39. The protein content in a bacterial cell on dry weight basis is
a) 15 % b) 60 % c) 35 % d) 70%
40. Which one is the example of host specific toxin
a) tabtoxin b) fusaric acid c) pyricularin d) victorin
41. Bergeys manual of Determinative Bacteriology is published in
a) 4 volumes b) 11 sections c) 2 volumes d) 3 volumes
42. The protein associated with the genetic transformation process in bacteria is

- a) Flagellin b) Glycoprotein c) Rec A protein d) Pilin
43. Plant pathogenic bacteria which does not belong to coryneform group is
a) Clavibacter b) Pseudomonas c) Curtobacter d) Ralstonia
44. LOPAT test is used for the identification of
a) Xanthomonas b) Fluorescent Pseudomonas c) Xylella d) Agrobacterium
45. Ti Plasmid is present in
a) *Agrobacterium radibacter* b) *Agrobacterium tumefaciens*
c) *Xylella fastidiosa* d) *Xanthomonas*
46. Turnip shaped single celled pedicellate teliospore is a character of genus
a) Puccinia b) Uromyces c) Hemilia d) Melampsora
47. Bakane disease of rice caused due to the production of any one of the following by the fungal pathogen
a) Gibberellins b) Cytokinins c) Toxins d) Auxins
48. Plant disease which affect the absorption and accumulation of water and minerals
a) Root rot b) Wilts c) Damping off d) Soft rot
49. The incubation period for stem rust of wheat in South India is
a) one month b) 27 days c) 12-15 days d) 60 days
50. Antibiotic affecting nucleic acid synthesis is
a) Streptomycin b) Griseofulvin c) Cycloheximide d) Kanamycin
51. Oxanthiin fungicides act on the fungal cell by
a) Inhibiting mitochondrial respiration b) Inhibiting cell membrane permeability
c) Inhibiting protein synthesis d) Inhibiting electron transport
52. Papaya ring spot is caused by
a) poty virus b) cucumo virus c) como virus d) tobamo virus
53. Most viruses move longer distances through the plants in the
a) Xylem b) Plasmodesmata c) Phloem d) a&b
54. Virus with split genome
a) Tobra virus b) Potato virus Y c) Cauliflower mosaic virus d) TMV
55. The number of days required for most of the viruses to move out of inoculated leaf is
a) 2 to 5 days b) 1 month c) 45 days d) 7 days
56. The rice tungro virus contains
a) ss RNA b) ds RNA c) ds DNA d) a&c
57. Genome of viroid is
a) ss RNA b) ds RNA c) ds DNA d) ss DNA

58. Who established that nucleic acid is the infectious agent in plant virus
a) W.M.Stanley b) Gierer and Schramm
c) Bawden and Pirie d) Gibbs and Harrison
59. Bacteria as causal agent of plant disease was first reported by
a) N.A.Cobb b) De bary c) T.J.Burill d) Adolf Meyer
60. Fungi causing smut diseases belong to
a) Ascomycotina b) Basidiomycotina c) Deuteromycotina d) Zygomycotina
61. The no. of spores produced by *Puccinia graminis tritici* during its life cycle is
a) 5 b) 3 c) 2 d) 4
62. Brown rot of Potato is caused by
a) *Ralstonia solanacearum* b) *Erwinia carotovora*
c) *Pseudomonas syringae* d) *Streptomyces scabies*
63. Hinosan is used to control
a) Powdery mildew b) Fusarial wilt of tomato c) Blast of Paddy d) Downy mildew
64. bimodal transmission is seen in case of
a) geminivirus b) bromovirus c) caulimovirus d) tobamovirus
65. Alternate host for *Puccinia graminis tritici*
a) *Barberry vulgaris* b) Brinjal plant c) *Oxalis corniculata* d) Mohania
66. Angular leaf spot of cotton is caused by
a) *Xanthomonas campestris pv.malvacearum* b) *Agrobacterium tumefaciens*
c) *Erwinia carotovora* d) *Colletotrichum falcatum*
67. A disease occurring severely and confined to small locality /area is
a) Epidemic disease b) Endemic disease c) Pandemic disease d) Sporadic disease
68. A fungal antagonist used in the biological control of soil borne fungal diseases
a) *Trichoderma spp* b) *Fusarium solani* c) *Bacillus subtilis* d) *Pencillium spp*
69. Effective fungicide for the control of late blight of potato
a) Ridomil MZ b) Ipridione c) Bavistin d) Hinosan
70. *Colletotrichum falcatum* causes
a) Anthracnose of chilli b) Red rot of sugarcane
c) Sett rot of sugarcane d) Anthracnose of grapes
71. Koleroga of arecanut is controlled by spraying
a) Calixin b) Captan c) Bordeaux mixture d) Bavistin
72. Tomato leaf curl virus is transmitted by
a) *Myzus persicae* b) *Bemisia tabaci* c) *Aphis gossypii* d) *Thrips palmi*

73. Leaf shredding and green ear symptoms are noticed in
a) Downy mildew b) Wilt c) Rusts d) Smuts
74. The genetic material in a typical bacterial cell is contained in
a) Definite nucleus b) Chromosomal strand c) None of these d) Mesosome
75. Katte disease of cardamom is transmitted by
a) *Myzus persicae* b) *Thrips tabaci* c) *Pentalonia nigranervosa* d) *Aphis gossypii*
76. Citrus greening disease is caused by a
a) Phloem inhabiting fastidious vascular bacteria b) Virus
c) Xylem inhabiting fastidious vascular bacteria d) Fungus
77. A systemic fungicide used for the control of Powdery mildew diseases
a) Wettable Sulphur b) Tridemorph (Calixin) c) Tricyclazole (beam) d) Fosetyl-Al
78. Local quarantine regulation for koleroga of arecanut is present in
a) Kerela b) Tamil Nadu c) Karanataka d) Maharastra
79. Indicator plant used for citrus tristeza virus
a) Kagzi lime b) Sweet orange c) Trifoliate orange d) Rangapur lime
80. Black rot of cabbage is caused by
a) *Xanthomonas campestris pv. campestris* b) *Rhizoctonia solani*
c) *Xanthomonas campestris pv. vesicatoria* d) *Fusarium solani*
81. Tikka disease of Groundnut can be controlled by spraying
a) Sulphur fungicide b) Thiram c) Bavistin d) Vitavax
82. Swollen shoot of cocoa is transmitted by
a) *Pentalonia nigranervosa f.sp. caladii* b) *Pseudococcus njalensis*
c) *Nephotettix cincticeps* d) *Aphis craccivora*
83. Phytoalexin is produced by plants in response to fungal infection are
a) phenolic compound b) glycoprotein c) protein d) lipid
84. Stem rust of wheat is caused by *Puccinia graminis tritici* has been successfully cultured on medium by
a) Waksman b) Williams c) Coleman d) Cobb
85. Cell wall of fungi belonging to Oomycetes contain
a) Chitin b) Cellulose c) Peptidoglycon d) Glucan
86. Pseudomycelium is formed in
a) *Synchytrium* b) *Rhizopus* c) *Yeast* d) *Pythium*
87. *Amomum subulatum* is one of the alternate host for
a) Leaf curl of tomato b) Katte disease of cardamom

- c) Coconut (wilt) disease d) Koleroga of arecanut
88. Certain bacteria to gain entry into host tissues to dissolve cell wall of the plant it produce
 a) Pectolytic enzyme b) Gibberellic acid c) Phytotoxin d) Polysaccharide
89. Nuclear position of secondary mycelium of basidiomycotina is
 a) $n+n$ b) $2n$ c) n d) $3n$
90. *Rhizoctonia solani* a root rot causing pathogen comes under order
 a) Monilia b) Sphaeropsidales c) Mycelia sterilia d) Melanconiales
91. In case of *Uncinula nicator* ascocarp consists of more number of asci appendages type is
 a) Coiled type b) Myceloid type c) Dichotomously branched type d) Bulbous base type
92. In 1927 discovered the functions of Spermatia and their role in dikaryotization by
 a) Craigie b) Bawden c) Thirumalachar d) William
93. One of the important cultural method suggested for eradication of
Fusarium oxysporum fsp. cubense from soil is
 a) Summer ploughing b) Flooding the soil c) FYM application d) Soil solarization
94. Anthracnose of beans caused by
 a) *Colletotrichum lindemuthianum* b) *Fusarium solani* c) *Cercospora sp.* d) *Alternaria*
95. *Viscum spp.* is a plant parasite
 a) Partial parasite b) Complete parasite c) Root parasite d) Stem parasite
96. Insect vector transmitted viruses are more serious during
 a) Winter season b) Rainy season c) Summer season d) Spring season
97. A fungus requires only one single host for completion of its life cycle is called
 a) Heterocious b) Autoecious c) Heterothallism d) Heterosporus
98. A major threat for pomegranate cultivation in recent days is bacterial
 blight and it is caused by
 a) *Xanthomonas campestris pv. campestris* b) *Ralstonia solanacearum*
 c) *Erwinia caratovora* d) *Xanthomonas axonopodis pv. punicae*
99. 1882-85 discovered Bordeaux mixture by
 a) Mc Ray b) P.M.A. Millardet c) Prevost d) Mason
100. Citrus tristeza could be effectively managed by
 a) Grafting b) Spraying insecticides c) Cross protection d) Boarder cropping

MODEL PAPER-3

1. Simple interest disease over time produces
 - a) Hyperbolic curve
 - b) Saturation curve
 - c) sigmoid curve
 - d) straight line
2. Plant pathogenic bacteria are
 - a) Phototrophs
 - b) Heterotrophs
 - c) Autotrophs
 - d) Chemotrophs
3. *Puccinia graminis tritici* produces aeciospores on
 - a) Wheat plants
 - b) Brinjal plants
 - c) Barberry plants
 - d) a&c
4. Flagellar arrangement in *Erwinia* is
 - a) monotrichous
 - b) amphitrichous
 - c) lophotrichous
 - d) peritrichous
5. Viroid- a new infectious agent causing potato spindle tuber disease was first reported by
 - a) Doi *et al*
 - b) Diener
 - c) Stanley
 - d) Kassanis
6. Sexual spore produced by fungi causing downy mildew diseases
 - a) Zygosporangium
 - b) Teliospore
 - c) Oospore
 - d) Zoospore
7. Wilt disease of banana caused by *Ralstonia solanacearum* is called as
 - a) Panama wilt of banana
 - b) Slow decline of banana
 - c) Moko disease of banana
 - d) Sigatoka disease
8. Bursting of Pseudostem in banana is observed in plants suffering from
 - a) Bunchy top
 - b) Panama wilt
 - c) Root-knot nematode disease
 - d) Banana streak virus
9. Downy mildew is caused by the member of the family
 - a) pythiaceae
 - b) albuginaceae
 - c) perenpsporaceae
 - d) albuginaceae
10. Nylon netting of Tomato nursery is practiced for the management of
 - a) Bacterial wilt
 - b) Early blight
 - c) Leaf curl
 - d) Late blight
11. Hartig nets are found in
 - a) ectomycorrhiza
 - b) endomycorrhiza
 - c) oomycetous fungi
 - d) ascomycetous fungi
12. *Agrobacterium tumefaciens* causes
 - a) Root-knot disease
 - b) Pre emergence damping off of seedlings plants
 - c) Post emergence damping off of seedlings
 - d) Galls and tumours
13. A computer software system developed for field sampling of diseased specimens
 - a) Tom cast
 - b) Field Runner
 - c) Area gram
 - d) Blitecast

14. A computerized disease forecasting system for the occurrence of late blight of potato
a) Blitecast b) Disease.Pro. c) Tom cast d) Simmcast
15. Cleistothecia with single ascus and mycelial type appendages is common in genus
a) Erysiphe b) Podosphera c) Sphaerotheca d) Levilulla
16. Blotter test is commonly followed for the detection of
a) Seed borne viruses b) Seed borne bacteria c) Seed borne fungi d) Seed borne
17. The alternate host for *Hemilia vastatrix* is
a) *Barbery vulgaris* b) *Oxalis corniculata* c) *Solanum melongena* d) Not known
18. Most widely used bio control agent is
a) *Pseudomonas fluorescense* b) *Pseudomonas putida*
c) *Bacillus subtilis* d) *Clostridium*
19. Groundnut bud necrosis virus is transmitted through
a) Thrips b) Aphids c) Leaf hoppers d) Whitefly
20. Most widely used fungicide for smut fungi
a) Vitavax b) Plantvax c) Dithane M-45 d) Dithane Z-78
21. The sexual spores produced by fungi belonging to Deuteromycotina are
a) Ascospores b) Oospores c) No sexual spores are produced d) Zygosporos
22. MLO's are sensitive to
a) Penicillin b) Tetracycline c) Streptocycline d) Bavistin
23. An example of bioagent is
a) *Trichoderma viridae* b) *Phytophthora parasitica*
c) *Ralstonia solanacearum* d) *Pseudomonas putida*
24. Tundu disease of Wheat is caused by
a) *Anguina tritici* b) *Corynebacterium tritici* c) Both a & b d) None of these
25. Outbreak of a disease over a large plant population is known as
a) Sporadic b) Endemic c) Epidemic d) Pandemic
26. Black stem rust of wheat is caused by
a) *Puccinia recondita* b) *Puccinia graminis tritici*
c) *Puccinia striiformis* d) *Puccinia hordei*
27. Peach leaf curl is caused by
a) Virus b) Bacteria c) Fungus d) Viroid
28. Non-motile spores of fungus are called
a) Zoospores b) Aplanospores c) Zygosporos d) Chlamydosporos

29. Teliospore is a
 a) Sexual b) Asexual c) Vegetative d) Chlamydospore
30. Grain smut of Sorghum is caused by
 a) *Sphacelotheca sorghi* b) *Sphacelotheca cruenta*
 c) *Sphacelotheca reiliana* d) *Tolyposporium ehrenbergii*
31. TMV is transmitted through
 a) Cigarette b) Insect c) Fungi d) Nematode
32. Coconut cadang-cadang disease is caused by
 a) Virus b) Nematode c) Viroid d) Phytoplasma
33. Species that possess two motile stages with a resting stage between are described as:
 a) Dimorphic b) Dikaryotic c) Divaricate d) Diplanetic
34. The most important soil borne disease in nursery is
 a) Leaf spot b) Damping off c) Blight d) Anthracnose
35. Tomato leaf curl disease is transmitted by
 a) Thrips b) Whitefly c) Aphids d) leaf hoppers
36. Matured virus particle is called
 a) Viroid b) Virion c) Prion d) Adult virus
37. A rust fungus that completes its entire lifecycle on single host is called as
 a) Heteroecious b) Autoecious c) Brachy type d) Endo type
38. Mutualistic association of fungus with plant parts is
 a) Mycotoxicoses b) Mycorrhiza c) Lichens d) Commensal
39. A phialospore is a type of
 a) Sporangiospore b) Blastic conidium c) Thallic conidium d) Sexual spore
40. The loss of turgidity and drooping of leaves or shoots caused by fungi and bacteria
 a) Wilt b) Die-back c) Decline d) Root rot
41. *Puccinia graminis tritici* infects
 a) Wheat and Oats b) Oats and barley
 c) Barbery and Wheat d) Wheat and oxalis sp
42. Chemical that halts the progress of a fungus is known as
 a) Fungicide b) Antibiotic c) Fungistat d) Toxin
43. Perithecium is a sexual fruiting body produced by
 a) *Albugo candida* b) *Pythium butleri*
 c) *Rhizopus nigricans* d) *Erysiphe polygoni*

44. Exogenous spores are-
- a) conidiospore b) sporangiospore c) zoospore d) oospore
45. Rhodamine B is used to detect viruses in
- a) Microprecipitation test b) Ring interface test
 - c) ELISA d) Fluorescent antibody technique
46. Late blight of potato is the best example for
- a) Endemic disease b) Epidemic disease
 - c) Epiphytotic disease d) Pandemic disease
47. The sequence of fixing components in the well in ELISA are
- a) Antigen-antibody –conjugate b) Antibody-conjugate-antigen
 - c) Antibody- conjugate-antigen d) Antibody-antigen conjugate
48. Which of the facts related to *Hemilia vastatrix* is incorrect?
- a) The fungus seldom invades the cuticle directly
 - b) The uredospores are borne on club shaped stalks
 - c) The lesion is surrounded by a halo
 - d) *Coffea robusta* is partially resistant
49. Fungi capable of alternating between a mycelial growth form and a yeast phase are described as:
- a) Dikaryotic b) diplanetic c) dimorphic d) divaricate
50. Which of the following statement is not correct?
- a) Phaseolotoxin is produced by *Pseudomonas syringe pv.phaseolicola*
 - b) Tentoxin is produced by *Alternaria alternata*
 - c) Victorin is produced by *Cochliobolus victoriae*
 - d) Tabtoxin is produced by *Alternaria helianthi*
51. Erysiphe causes the disease
- a) powdery mildews b) downy mildews c) covered smut d) late blight of potato
52. The induced structural defences is
- a) Cytoplasmic defence reaction b) Hypersensitive reaction
 - c) Phytoalexins d) Phenolic compounds

53. The coprophilic fungi inhabit
- dung substratum
 - dead wood
 - decaying leaves
 - food articles
54. Which forecasting is best for the late blight of potato?
- Forecasting system based on inoculum load
 - Forecasting system based on weather conditions
 - Forecasting system based on cropping systems
 - Forecasting system based on area under susceptible crop
55. The mycologist involved with late blight of potato is
- Millardet
 - Marshal Ward
 - Anton de Bary
 - Prevost
56. The fungus involved with foot rot of pepper is
- Phytophthora parasitica*
 - Phytophthora palmivora*
 - Phytophthora capsici*
 - Phytophthora infestans*
57. The genus of powdery mildew pathogen that produces both external and internal mycelium is
- Leveillula
 - Microsphaera
 - Podosphaera
 - Phyllactinia
58. The fungal genus that causes anthracnose diseases in crops is
- Glomerella
 - Elsinoe
 - Colletotrichum
 - All the above
59. Mycotrophy is the symbiosis of a fungus with
- bacteria
 - algae
 - bryophytes
 - other fungi
60. The primary source of infection for black rot of cabbage is
- Seed
 - Air
 - Soil
 - Water
61. The sexual fruiting bodies produced by fungi are
- Perithecium
 - Pycnidium
 - Both
 - None
62. *Plasmopora viticola* grows best on
- Potato dextrose broth
 - MS medium
 - Czapeck's dox agar
 - None of these media
63. The quarantine act passed by India is
- Destructive insect and pest act 1914
 - Destructive insect and pest and disease act 1914
 - Pest and disease act 1914
 - Destructive insect and disease act 1914
64. Citrus greening is transmitted by

- a) *Toxoptera citricidus* b) *Hishimonas physitis* c) *Scirtothrips dorsalis* d) *Myzus persicae*
65. Father of modern Plant Pathology
 a) Millardet b) E.J.Butler c) Anton de Bary d) A.H.Buller
66. Germ theory was originated from the works of
 a) Antony van Leeuwenhoek b) Louis Pasteur c) Theophrastus d) Robert Koch
67. The first person to transmit virus infection from infected to healthy plant is
 a) Mayer b) Iwanowski c) Beijerinck d) E.F.Smith
68. The process of self-fertilization in fungi is known as
 a) automixis b) amphimixis c) spermatization d) somatogamy
69. The chemical reaction involved in Bordeaux mixture is
 a) $\text{CuSO}_4 + \text{Ca}(\text{OH})_2 = \text{Cu}(\text{OH})_2 + \text{CaSO}_4$
 b) $\text{CuSO}_4 + \text{CaO}_2 = \text{CuO}_2 + \text{CaSO}_4$
 c) $\text{CuSO}_4 + \text{Ca}(\text{OH})_2 = \text{CuO} + \text{CaSO}_4 + \text{H}_2\text{O}$
 d) $\text{CuSO}_4 + \text{Ca}(\text{OH})_2 = \text{Cu}(\text{OH})_2 + \text{CaSO}_4$
70. Bordeaux mixture 0.5% is prepared by mixing copper sulphate and lime water in the proportion
 a) 1.5:1.5:50 b) 0.5:0.5:50 c) 1:1:50 d) 0.25:0.25: 50
71. Blast disease of Rice was first recorded in
 a) Japan b) China c) Philippines d) India
72. The conidial shape of *Pyricularia oryzae* is
 a) Muriccate b) Obclavate c) Pyriform d) Clavate
73. The fungus that invades the host through stomata is
 a) *Pyricularia oryzae* b) *Colletotrichum falcatum*
 c) *Erysiphe polygoni* d) *Puccinia recondita*
74. Which of the following statement is not correct in respect of *Sphacelotheca sorghi*
 a) Entire head is smutted
 b) Spores are viable for more than ten years
 c) Spores are externally seed borne
 d) Most destructive of all the smuts recorded on Sorghum
75. Green ear is the characteristic symptom produced by
 a) *Pseudoperonospora cubens* b) *Plasmopora viticola*
 c) *Sclerospora graminicola* d) *Claviceps purpurea*
76. The sclerotial bodies of *Claviceps microcephala* upon germination produce the following spores and fruiting bodies
 a) Conidia in pycnidium b) Ascospores in apothecia

- c) Ascospores in perithecia d) Conidia in acervulus
77. Seed treatment with a fungicide is not useful against
- a) Head smut of Sorghum b) Smut of Ragi
c) Loose smut of Wheat d) Grain smut of Sorghum
78. Which fact with reference to *Cercospora arachidicola* is not true?
- a) Conidia shorter than *Cercospora personata*
b) Conidia longer than *Cercospora personata*
c) Spots are irregular in shape
d) Spots are surrounded by a yellow halo
79. Which of the following statement with reference to *Phytophthora spp.* is incorrect?
- a) *P. palmivora* causes bud rot in coconut
b) *P. capsici* causes fruit rot in areca
c) *P. arecae* causes nut rot in areca
d) *P. palmivora* causes leaf fall and fruit rot in mandarin
80. *Elsinoe ampelina* causes anthracnose in
- a) Citrus b) Mango c) Strawberry d) Grapes
81. Pick a copper based fungicide
- a) Phytolan b) Parasan c) Roundup d) Difolatan
82. Diplanetism is exhibited by
- a) Phytophthora b) Saprolegnia c) Mucor d) Albugo
83. Point out the non systemic fungicide
- a) Carboxin b) Penarimol c) Carbendazim d) Ziram
84. Which is the most effective soil drenching fungicide?
- a) Carbendazim b) Thiram c) Mancozeb d) Chlorothalonil
85. The trade name of the fungicide Triademefon is
- a) Baytan b) Bayleton c) Beam d) Baycor
86. The trade name for Oxycarboxin is
- a) Vitavax b) Plantvax c) Topsin d) Ridomil
87. The mycelium of Oomycetes fungi is
- a) Coenocytic b) Septate c) Haploid d) Dikaryotic
88. Repeating spores of rust fungi is
- a) Teliospore b) Basidiospore c) Aeciospore d) Urediospore
89. Secondary mycelium of Basidiomycotina is
- a) Dikaryotic b) Diploid c) Tetraploid d) Haploid

90. *Macrophomina phaseolina* belongs to the order
a) Sphaeropsidales b) Melanconiales c) Moniliales d) Peronosporales
91. Late blight of potato caused famine in Ireland in year
a) 1845 b) 1857 c) 1872 d) 1945
92. Frog eye spot of tobacco is a serious disease caused by
a) *Cercospora moricola* b) *C.nigricans* c) *C.lycopersicum* d) *C.nicotianae*
93. The perfect stage of *Helminthosporium oryzae* is
a) *Drechslera sacchari* b) *D.oryzae* c) *D.hawaiiensis* d) *D.halodes*
94. Citrus canker caused by *Xanthomonas citri* has been suggested to be originated from
a) China and Pakistan b) Japan and China
c) Java and India d) America and Guatemala
95. Viroids are devoid of
a) Protein coat b) Ribosomes c) Cell wall d) Cell membrane
96. Leaf curl of tomato is a geminivirus whose nucleic acid is made up of
a) RNA b) DNA c) RNA and DNA d) ss RNA
97. Contagium vivum fluidum theory was proposed by
a) Iwanowski b) Beijerinck c) Mayer d) Hashimoto
98. Papaya ring spot virus is a non persistent virus transmitted by
a) *Toxoptera citricidus* b) *Myzus persicae*
c) *Bemisia tabaci* d) *Cuscuta reflexa*
99. Of the 25 virus disease recorded in India on Potato, the most destructive one is
a) Leaf roll b) Rugose mosaic c) PV-X d) PV-Y
100. Yellow mosaic of Bhendi and mosaic disease of Cassava are transmitted by
a) *Aphis craccivora* b) *Bemisia tabaci*
c) *Myzus persicae* d) *Toxoptera aurantii*

MODEL PAPER-4

1. Trade name of Chlorothalonil is
a) Daconil b) Emisan c) Glyodin d) Foltof
2. Curzate, a systemic fungicide is specific to
a) Downy mildew b) Powdery mildew c) Smuts d) Wilts
3. The primary source of inoculum for stem and fruit canker of tomato is
a) Soil borne only b) Seed borne only c) Soil and seed borne d) Air borne
4. The genome of Tomato leaf curl virus is
a) ss RNA b) ds RNA c) ss DNA d) ds DNA
5. A typical symptom on bird's eye spot is caused by
a) *Ralstonia solanacearum* b) *Xanthomonas camqestris sub spp. campestris*
c) *X.c.pv. vgsicatoria* d) *Clavibacter michiganense suf sp. michiganense*
6. The position of the antheridium in connection with the oogonia in Albugo is called as paragynous when the antheridium
a) grows beside the oogonium b) encircles the oogonium
c) remains at the base of the oogonium d) grows on the oogonial wall
7. Vertifolia effect is caused due to loss of
a) Horizontal resistance b) Vertical resistance c) Apparent resistance d) All
8. The fertile portion in the fruiting body of Lycoperdon is called
a) Gleba b) Peridium c) Hymenium d) Gills
9. Tomato mosaic is transmitted by
a) Aphids b) Seed c) Sap d) Both b and c
10. Little leaf of Brinjal is caused by
a) Phytoplasma b) Virus c) Viroid d) Bacteria
11. A fungus causing wart of potato is
a) A saprophyte b) A facultative parasite c) A facultative saprophyte d) An obligate
12. A long flexious filamentous ssRNA virus is
a) Potato virus X b) Cucumber mosaic virus
c) Beet yellow virus d) Tomato mosaic virus
13. The fruiting body of *Colletotrichum capsici* is
a) Acervulus b) Perithecia c) Pycnidia d) Sporodochium
14. A toxic substance produced by *Trichoderma viridae* is

- a) Gliovirin b) Viridin c) Subtilin d) Pseudobactin
15. The famous Irish famine occurred in the year
a) 1845 b) 1854 c) 1880 d) 1865
16. The resistant structure produced by *Fusarium* sp. is
a) Sclerotia b) Stroma c) Conidia d) Chlamydozoospores
17. Macrocytic rust is the name given to some fungi,
a) which produces bigger spores
b) where all the five spore stages are produced
c) which completes its life-cycle on a single host
d) which selects many hosts to complete its life-cycle
18. Bacterial canker of tomato is caused by
a) *Xanthomonas campestris.pv. vesicatoria* b) *X. campestris.pv.malvacearum*
c) *Clavibacter michiganense sub sp. michiganense* d) *Ralstonia solanacearum*
19. The indicator plant used for citrus greening
a) Kagzi lime b) Sweet orange c) Trifoliate orange d) Rangapur lime
20. The type of nucleic acid present in yellow mosaic of Bhendi is
a) ss RNA b) ds RNA c) ss DNA d) ds DNA
21. Powdery mildew of chilli is caused by
a) *Erysiphe polygoni* b) *Erysiphe cichoracearum*
c) *Leveillula taurica* d) *Sphaerotheca fuliginia*
22. Pea rust is caused by
a) Puccinia b) Uromyces c) Phakospora d) Urocystis
23. The local quarantine regulation for Katte disease of cardamom is prevalent in
a) Kerala b) Tamil Nadu c) Karnataka d) Maharashtra
24. Black spot of Rose is caused by
a) *Cercospora* sp b) *Alternaria* sp c) *Diplocarpon* sp. d) *Colletotrichum* sp.
25. A disease caused by *Colletotrichum circinans* in onion is
a) Black rot b) Soft rot c) Black mould d) Smudge
26. Fungi belonging to the order Ustilaginales are known to cause
a) Rusts b) Ergots c) Smuts d) All of these
27. A button like structure which penetrates the host and draws nutrients
a) Rhizoid b) Appressorium c) Rhizomorph d) Haustoria
28. A plant viral disease of seed borne nature
a) Potato virus b) Cassava virus c) Common bean mosaic virus d) TMV
29. A disease affecting food conduction in plant

- a) Vascular wilt b) Root rots c) Sandal spike d) Soft rots
30. What is the fruit body of *Penicillium* called
 a) perithecium b) cleistothecium c) apothecium d) stroma
31. Who was considered as founder of virology?
 a) W.M. Stanley b) Beijerinck c) T.O. Diener d) A.E. Mayer
32. Sporangia are produced in chains
 a) *Pythium* b) *Phytophthora* c) *Oidium* d) *Albugo*
33. Ostiolate ascocarp is known as
 a) Cleistothecium b) Perithecium c) Apothecium d) Ascostromata
34. A bacterial genus which enters through nectarines is
 a) *Pseudomonas* b) *Xanthomonas* c) *Erwinia* d) *Bacillus*
35. An endophytic powdery mildew genus having the cleistothecial characters like indefinite myceloid appendages
 a) *Microsphaera* b) *Sphaerotheca* c) *Phyllactinia* d) *Leveillula*
36. A tuft of flagella one or both ends is called
 a) Amphitrichous b) Lophotrichous c) Peritrichous d) Monotrichous
37. Prokaryote without the cell wall
 a) Bacteria b) *Rickettsia* like organisms c) Bacteria like organisms d) *Spiroplasma*
38. Low molecular weight infectious RNA without a protein envelope is
 a) Virusoid b) Virus c) Ca deficiency d) Viroid
39. Robigalia was celebrated by Romans against
 a) Smuts b) Blights c) Rusts d) Both
40. The fungus which is so important for its use in genetic studies is
 a) *Aspergillus* b) *Rhizopus* c) *Penicillium* d) *Neurospora*
41. A partial root parasite of trees
 a) Sandal b) *Cuscuta* c) *Striga* d) *Loranthus*
42. Cross protection can be achieved by inoculating the plants first with
 a) Attenuated strain b) Mild strain of same virus
 c) Mild strain of different virus d) Severe strain
43. Use of antibiotics in plant disease control is by
 a) G. Rangaswamy b) Coleman c) M.J. Thirumalachar d) J.C. Luthra
44. Highly contagious virus
 a) Cucumber mosaic virus b) Tobacco mosaic virus
 c) Potato leaf roll virus d) Tomato leaf roll virus

45. A plant viral disease of seed borne nature
 a) Potato virus-X b) Cassava mosaic c) Both a and b d) None
46. Dikaryotic mycelium is a distinct feature of fungi belonging to
 a) Ascomycotina b) Diplomastigomycotina c) Deuteromycotina d) Basidiomycotina
47. Bio-agent used in the management of airborne diseases
 a) *Trichoderma viridae* b) *Pseudomonas fluorescense*
 c) Both a and b d) *Trichoderma harzianum*
48. Micro conidia are found in
 a) Claviceps b) Neurospora c) Rhizoctonia d) Pyricularia
49. Plant pathogenic bacteria having relevance in genetic engineering
 a) Xanthomonas b) Agrobacterium c) Pseudomonas d) Erwinia
50. In Agaricus, the cell in which reduction division takes place is known as
 a) basidiospore b) basidium c) chlamyospore d) None
51. Xanthomonas penetrates the host tissue through
 a) Lenticels b) Stomata c) Root hairs d) Stigma
52. Reproduction in Basidiomycetous fungi is through
 a) Spermatization b) Somatogamy c) a or b d) Both a and b
53. Practical and feasible method in managing soil borne diseases is through
 a) Chemotherapy b) Crop rotation
 c) Biological control d) Use of disease resistant varieties
54. A systemic fungicide is
 a) Copperoxychloride b) Hexacanozole c) Dinocap d) Carbendazim
55. Stroma is
 a) compact somatic hyphae with fruit bodies b) a group of spores
 c) loosely interwoven hyphae d) a small hyphal branch
56. All plant pathogenic bacteria are
 a) Facultative saprophytes b) Facultative parasites
 c) Obligate parasites d) Perthrotrophs
57. A culturable cell wall less fastidious prokaryote causing plant diseases is
 a) Richetssia like organisms b) Phytoplasma
 c) Spiroplasma d) Bacteria like organism
58. Mycelium of class Oomycetes is always
 a) Coenocytic b) Septate c) Cross septa d) None
59. Nuclear position of uredial stage in rust fungi is
 a) n b) 2n c) n+n d) None

60. Streptomycin sulphate, an antibiotic was isolated by
 a) Rangaswami b) Millardet c) Waksman d) Thirumalachar
61. Tur wilt is caused by
 a) *Sclerotium rolfsii* b) *Rhizoctonia solani*
 c) *Fusarium udum* d) *Fusarium oxysporum fsp. cubense*
62. Race specific resistance is called
 a) Vertical resistance b) Horizontal resistance
 c) Adult plant resistance d) Apparent resistance
63. L.C.Coleman was a general pathologist during 1914 but worked and suggested control measures for
 a) Koleroga of Areca b) Tur wilt c) Late blight of potato d) Blister blight of Cocoa
64. *Exobasidium vexans* which causes
 a) Blight of coffee b) Blister blight of tea c) Blister blight of Cocoa d) Red rust of tea
65. Early blight of potato and tomato caused by
 a) *Alternaria solani* b) *Alternaria alternata*
 c) *Alternaria helianthi* d) *Alternaria tenuis*
66. Downy mildew causing pathogens, powdery mildew causing pathogens and rust causing pathogens are
 a) Obligate parasites b) Facultative saprophytes
 c) Obligate saprophytes d) Facultative parasites
67. The phanerogamic parasite with the Sorghum crop
 a) Striga b) Orobanche c) Loranthus d) Cuscuta
68. Teliospores are single celled, papillate and stalked, the genus identified as
 a) Puccinia b) Phragmidium c) Uromyces d) Hemilia
69. One of the chemical weapons secreted by the pathogen in production of disease in plants
 a) Pathogen related proteins b) Phytotoxins c) Phytoalexins d) Toxins
70. The word virus literally mean
 a) Toxin b) Enzyme c) Poison d) Antibiotic
71. Conidia are produced singly at tips of conidiophores by
 a) *Uncinula* spp b) *Leveillula* c) *Erysiphe* spp d) *Microsphaera* spp.
72. When plant showed the partial resistance against all the races of pathogen then it is a type of:
 a) Horizontal resistance b) Vertical resistance
 c) Induced resistance d) Non-host resistance
73. The teliospore of coffee leaf rust pathogen is

- a) Turnip shaped b) Bean shaped c) Sickle shaped d) dumbbell shaped
74. Which one of the following cannot be detected by ELISA technique?
 a) Virus b) Bacteria c) Viroid d) Fungus
75. Viruses are
 a) Purely protein b) Purely nucleic acids c) Nucleoproteins d) None of these
76. Bacteriophages were discovered by
 a) F.Towort b) Felix d Herelle c) Beijernick d) a&b
77. In a long cycled rust “0” stage refers to
 a) Aecium b) Uredium c) Pycnium d) Basidium
78. Who is know as Father of virology
 a) Adolf Mayer b) M.W. Beijernick c) D.Ivanowaski d) Stanley
79. Virus know is know during 17th century in Europe
 a) Tulip colour break b) TMV c) CMV d) SMV
80. Viruses which replicate by reverse transcription
 a) CaMV b) TMV c) Begomo virus d) Poty virus
81. Banana Streak Virus is transmitted by
 a) Mealybug b) Thrips c) Whitefly d) Mite
82. Viruses which have ORFs that may be translated into proteins in both directions
 a) Begomoviruses b) Potyviruses c) Tobamoviruses d) Cucumoviruses
83. The protein content in a bacterial cell on dry weight basis is
 a) 15 % b) 60 % c) 95 % d) 45%
84. All Reo viruses causes galls expect
 a) Wound Tumour virus b) Rice gall dwarf virus c) Rice dwarf virus d) None
85. The most widely used granulated formulations have granule size of
 a) 0.1 to 1 mm b) 0.2 to 1 mm c) 0.3 to 1 mm d) 0.4 to 1 mm
86. The additive chemicals which possess surface modifying properties are called as
 a) Wetting agents b) Spreaders c) Penetrants d) Surfactants
87. Components of Chestnut compound are
 1) Copper sulphate 2) Ammonium carbonate 3) washing soda 4) Quick lime
 a) 1 only b) 1 and 2 only c) 1, 2 and 3 only d) All the above
88. The great Bengal famine in 1943 was due to
 a) Paddy blast b) Brown leaf spot of Rice c) Bacterial leaf blight d) Rice tungro
89. Phytoalexin inducers viz ferric chloride, nickel nitrate etc., offer protection against
 a) Blast b) Rice tungro c) Brown leaf spot d) Bacterial leaf blight

MODEL PAPER-5

1. White rust of crucifers is caused by
 - a) *Plasmodiophora brassicae*
 - b) *Olpidium brassicae*
 - c) *Albugo candida*
 - d) *Alternaria brassicae*
2. Captan as fungicide was introduced by
 - a) Kittleson
 - b) Von Schemling and Kulka
 - c) Millardet
 - d) Tisdale
3. 1% Bordeaux mixture is a combination of
 - a) 10 kg copper sulphate + 10 kg lime + 100 lt water
 - b) 1kg copper sulphate + 1kg Sod. carbonate + 100 lt water
 - c) 1kg copper sulphate + 1kg Lime + 100 lt water
 - d) 10kg copper sulphate + 10kg Lime + 1000 lt water
4. Bordeaux mixture was an accidental discovery for
 - a) Downy mildew of grapes
 - b) Powdery mildew of grapes
 - c) Anthracnose of grapes
 - d) Late blight of Potato
5. Wheat mosaic virus is transmitted by
 - a) Fungi
 - b) Nematode
 - c) Leafhopper
 - d) Mealy bug
6. Tobacco rattle virus has
 - a) Two rods
 - b) Single rod
 - c) Three rods
 - d) Four rods
7. Oxanthiin group of systemic fungicides are effective against
 - a) Smuts
 - b) Rusts
 - c) Both
 - d) None
8. Organic sulphur fungicides are derived from
 - a) Thiourea
 - b) Dithiocarbamic acid
 - c) Phosphoric acid
 - d) Sulphur
9. Tulip colour braking virus belongs to
 - a) Poty viruses
 - b) Como viruses
 - c) Cucumo viruses
 - d) Clostero virus
10. Citrus Tristeza Virus is transmited by
 - a) Aphid
 - b) Psyllid
 - c) White fly
 - d) Leaf hopper
11. Gram +ve plant pathogen
 - a) *Streptomyces*
 - b) *Clavibacter*
 - c) *Erwinia*
 - d) None
12. Variability in bacteria is brought about by
 - a) Conjugation, transformation, transduction
 - b) Binary fission, transformation, budding
 - c) Binary fission, Conjugation, budding
 - d) Transduction, fragmentation, budding
13. The fungus *Rhizopus Stolonifer* is used to produce
 - a) Alcohol
 - b) Fumaric acid
 - c) Vitamin
 - d) Antibiotic

14. Common blight of beans is due to
 a) *Xanthomonas campestris pv.phaseoli* b) *Xanthomonas arboricola pv.pruni*
 c) *Xanthomonas campestris pv.vesicatoria* d) *Pseudomonas syringe pv.syringe*
15. Bacterial soft rot of vegetables is due to
 a) *Erwinia caratovora pv.caratovora* b) *Streptomyces scabies*
 c) *Xanthomonas campestris pv. Campestris* d) *Pseudomonas syringe*
16. Physical properties of virus are
 a) Dilution end point, thermal inactivation point, longevity invitro
 b) Local lesions, necrotic lesions, infectivity
 c) Translocation in plants, local lesion symptoms, systemic symptoms
17. Fungus transmitting tobacco necrosis is
 a) *Ceratocystis paradoxa* b) *Olpidium brassicae* c) *Trichodorus* d) *Heterodera*
18. Nematode transmitting grape fan leaf virus
 a) *Xiphinema index* b) *Longidorus* c) *Trichodorus* d) *Heterodera*
19. Bacterial pathogens which donot induce hypersensitive response on any plant
 a) *Pseudomonas & Xanthomonas* b) *Agrobacterium & Clavibacter*
 c) *Pseudomonas & Erwinia* d) *Xanthomonas & Agrobacterium*
20. Potato leaf roll virus is transmitted by
 a) *Myzus persicae* b) *Thrips tabaci* c) *Phytoptis ribis* d) *Aceria cajani*
21. Veinal clearing and veinal chlorosis of leaf is the chief symptom of the disease
 a) Leaf curl of chilli b) Tomato leaf curl
 c) Bhenidi yellow vein mosaic d) Tomato spotted wilt virus
22. Citrus variegated is due to
 a) Xylem limited fastidious vascular bacteria b) Virus c) Bacteria d) Protozoa
23. Existence of formae specialis was first demonstrated by
 a) Eriksson b) Stakman c) Anton de Bary d) Prevost
24. Main source of uredospores of *Puccinia graminis tritici* are
 a) Nilgiri and Palani hills b) Foot hills of Himalayas
 c) Darjeeling hills d) Western Ghat hills
25. Primary inoculum of brown and yellow rust comes from
 a) Foot hills of Himalayas b) Nilgiri and Palani hills
 c) Hills of Western Ghat d) Darjeeling hills
26. Rice Tungro virus has two kinds of particles which are
 a) Bacilliform and spherical/isometric b) Both bacilliform
 c) Both spherical d) Both isometrical

27. Rice Tungro virus is transmitted by
a) Leaf hoppers b) White flies c) Aphids d) Mites
28. The cause of Rice Yellows disease is a
a) Virus b) Spiroplasma c) Phytoplasma d) Bacteria
29. The causal organism of Bacterial leaf blight of Rice is
a) *Xanthomonas campestris pv oryzae* b) *Xanthomonas campestris pv oryzae*
c) *Pyricularia oryzae* d) *Ephelis oryzae*
30. Reserve food material of of bacteria
a) B-Hydroxybutarate b) Cellulose c) Glucan d) Levans
31. The use of Agar agar was first explained by
a) Walther and Frau hesse b) Ishi c) Suslow d) Wigert
32. Plant virus used as vector for gene transfer
a) Cucumovirus b) Caulimovirus b) Carlavirus d) Geminivirus
33. Paring and prolinage are done to manage
a) Banana decline b) Citrus decline c) Root knot d) Golden nematode of potato
34. Pine apple smell is noticed in sugarcane due to a disease
a) Redrot b) Sett rot c) Wilt d) Ring spot
35. Tobacco streak virus comes under
a) Illarvirus b) Bromo virus c) Potyvirus d) Comovirus
36. The founder of mycology was
a) Linnaeus b) Anton de Bary c) P.A.Micheli d) E.J.Butler
37. Species Plantarum is the greatest contribution of
a) P.A.Micheli b) Saccardo c) Linnaeus d) Kuhn
38. With regard to nutrition Erysiphe is
a) Ecto Parasite b) Endo parasite c) Both a & b d) None of the above
39. The class ends with
a) Mycotina b) Mycetes c) Mycetales d) None of these
40. First plant resistance gene Hm-1 is isolated from corn by
a) S.P. Briggs and Walton b) B.J. Staskawicz c) P.J.G.M.De Wit d) G.B.Martin
41. Pycnidia are formed in order
a) Moniliales b) Melanconiales c) Sphaeropsidales d) Erisyphales
42. Anterior tinsel flagellum is characteristics of
a) Chytridiomycetes b) Hyphochytridiomycetes c) Both a & b d) None of these

43. B.B.Mundkur wrote

- a) Fungi and Disease in Plants b) Fungi and Plant diseases
- c) The Fungi d) Plant diseases

44. Which one of the following is known as Downy mildew fungus

- a) Erysiphe b) Sclerospora c) Taphrina d) Podosphaera

45. Rust teleutospore on germination produce

- a) Four basidiospores b) Two basidiospores
- c) Indefinite basidiospores d) None of these

46. Fungi and Disease of plant was written by

- a) B.B.Mundkur b) E.J.Butler c) P.R.Mehta d) Prevost

47. Used lens for the first time to study microorganism

- a) Robert Koch b) Antony Van Leeuwenhoek c) Louis Pasteur d) T.J.Burill

48. Domestic Quarantine exist on

- a) Rice Blast b) Red rot of Sugarcane c) Wart of Potato d) Wheat rust

49. Once the pathogen has established in an area, steps taken to remove or destroy is known as

- a) Exclusion b) Eradication c) Protection d) Prevention

50. Loose smut of wheat can be controlled by

- a) Spray of fungicide on the crop b) Seed treatment
- c) Soil treatment d) Crop rotation

51. Flag smut of wheat is caused by

- a) *Ustilago tritici* b) *Urocystis tritici* c) *Ustilago hordei* d) *Ustilago nuda*

52. Agallol is used for

- a) Seed treatment b) Soil treatment c) Crop spray d) Fumigation

53. Leaf roll of potato is caused by

- a) Fungus b) Spiroplasma c) Virus d) Bacteria

54. Phytopathometry book is written by

- a) R.S.Singh b) C.D. Mayee c) S.Nagarajan d) A. Mahadevan

55. Foot rot of Papaya is caused by

- a) *Phytophthora palmivora* b) *Pythium aphanidermatum*
- c) *Peronospora parasitica* d) *Perenoscelerospora cubense*

56. Pythiaceus and allied fungi monograph is written by

- a) E.J.Butler b) K.C.Mehta c) B.Mundkar d) Y.L.Nene

57. Striga is a plant parasite included in

- a) Fungi b) Mycoplasma like organisms
- c) Phanerogamic plant parasites d) Bacteria

58. Khaira disease in rice is noticed by
a) Y.L.Nene b) S.N.Dasgupta c) M.K.Patel d) E.J.Butler
59. Transduction is a process of multiplication in
a) Fungi b) Bacteria c) Bacteriophages d) Nematode
60. The organisms lacking a well defined nucleus are termed
a) Prokaryote b) Fungi c) Eukaryote d) Protozoa
61. The organisms in the order Peronosporales cause the disease known as
a) Rust b) Smut c) Downy mildew d) Powdery mildew
62. First president of Indian PhytoPathological Society
a) J.F.Dastur b) E.J.Butler c) B.Mundkar d) M.K.Patel
63. Exclusion of plant disease by legislation is known as
a) Disease resistance b) Plant quarantine
c) Biological control of plant d) Cultural control
64. In India Destructive insect and pest act was promulgated in the year
a) 1912 b) 1914 c) 1922 d) 1947
65. Salicylic acid is associated with SAR is discovered by
a) S.P. Briggs and Walton b) B.J. Staskawicz c) D.F.Klessig and J.Ryals d) G.B.Martin
66. Fungi which can grow only on living host plant are called
a) Obligate saprophytes b) Obligate parasites
c) Facultative parasites d) Saprophytes
67. Ergotism was first time observed by
a) Thoullier b) P.A.Micheli c) B.Prevoist d) Homer
68. Pulley wheel shape ascospores are seen in
a) Claviceps b) Penicillium c) Aspergillus d) a&c
69. Thread like ascospores are seen in
a) Claviceps b) Sclerotinia c) Aspergillus d) Venturia
70. Haullucinogenic fungi
a) Psilocybe b) Armillaria c) Boletus d) Volvariella
71. Bioluminescence mushroom
a) Psilocybe b) Armillaria c) Boletus d) Volvariella
72. Lycomarasmin toxin is toxic in the presence of
a) Light b) Iron c) Copper d) Ammonia
73. Fungitoxic property of piricularin toxin is destroyed by
a) Copperoxide b) Light c) Pyridoxine d) Iron
74. Phenomenon of hetrothallism was discovered in 1904 by

a) A.F. Blakeslee b) E.J. Butler c) S.E. Lindlow d) E.F. Smith

75. A delicious food called Tempeh is prepared in Indonesia by

a) Rhizopus b) Penicillium c) Aspergillus d) a&c

76. Circinate appendages in suspensor are seen in

a) Pilobolus b) Absidia c) Rhizopus d) Mucor

77. Tongue like suspensor is present in

a) Pilobolus b) Absidia c) Rhizopus d) Mucor

78. Ergotism is caused by

a) Claviceps b) Sphacelotheca c) Tolyposporium d) Ustilago

79. Which are the cellulose attacking fungi at the time of decomposition of organic compound?

a) *Trichoderma*, *Aspergillus* b) *Ganoderma*, *Psalliota*
c) *Albugo*, *Puccinia* d) *Pythium*, *macrophomina*

80. Which of them is a poisonous mushroom?

a) Agaricus b) Volvariella c) Pleurotus d) Amanita

81. Which one of the following shows the symbiotic relationship?

a) Rhizobium b) Azotobacter c) Clostridium d) Nitrosomonas

82. Consider the following process on host plant occurring during pathogenesis

1) Landing of inoculum 2) Penetration 3) Germination
4) Recognition 5) Establishment and sporulation

The correct sequence of these processes is:

a) 1, 2, 3, 4, 5 b) 2, 3, 1, 5, 4 c) 1, 3, 2, 4, 5 d) 4, 1, 2, 3, 5

83. Severity of disease club root of crucifers can be reduced by application of

a) Lime b) Gypsum c) FYM d) Fertilizers

84. Weed of the laboratory

a) Neurospora b) Aspergillus c) Rhizopus d) a&b

85. Which of them is a gram positive bacterium?

a) Xanthomonas b) Pseudomonas c) Erwinia d) Corynebacterium

86. Ascochyta belong to order

a) Sphaeropsidales b) Melanconiales c) Sporobolomycetales d) Cryptococcales

87. Geniculate type of conidiopores are seen in

a) Cercospora b) Botrytis c) Alternaria d) Fusarium

88. When bacterial cells are subjected to unfavourable conditions they form

a) Oospores b) Zoospores c) Endospores d) Cyst

89. Association of fungi with roots of higher plants is known as

a) Lichen b) Mycorrhiza c) Ascolichen d) Basidiolichen

90. Mycoplasma disease of plant was first reported by
a) Butler b) Brefeld c) De Bary d) Doi *et al* and Ishiie *et al*
91. Fusarium produces
a) Macroconidia b) Microconidia c) Chlamydoconidia d) All
92. Conidia are arranged like necklace of beads in
a) Monilia b) Neurospora c) Botrytis d) a&b
93. The hyphae branches at right angle, below the septa and show distinct constrictions at the point of origin in
a) Rhizoctonia b) Fusarium c) Verticillium d) Curvularia
94. Powdery mildew fungi belong to the family
a) Erysiphaceae b) Hypocreaceae c) Hyphomycetaceae d) Nectriaceae
95. First plant parasitic bacteria was reported by
a) T.J. Burill b) Needham c) Louis Pasteur d) Leeuwenhoek
96. Black heart of potato is caused due to deficiency of
a) Boron b) Zinc c) Iron d) Oxygen
97. In which rust pustules are arranged in end to end manner and forming stripe
a) Yellow rust b) Orange rust c) Black rust d) White rust
98. Cigar-end disease of banana is caused by
a) *V.theobromae* b) *V. albo-atrum* c) *V. dahliae* d) *V. tricorpus*
99. Filiform, curved, walking stick like conidia are formed by
a) *Phomopsis* b) *Phoma* c) *Septoria* d) *Diplodia*
100. Basidiospores discharged violently are called as
a) Ballistospores b) Statismospores c) Planospores d) Aplanospores

MODEL PAPER-6

1. Tabtoxinine inactivates
 - a) Glutamine synthetase
 - b) Ornithine carbonyl transferase
 - c) Glycine decarboxylase
 - d) Ceramide synthetase
2. Accumulation of ornithine is due to
 - a) Tab toxin
 - b) Phaseolo toxin
 - c) Cercosporin
 - d) Ten toxin
3. Smut gives the appearance of
 - a) Compact hardness
 - b) Sooty powder
 - c) Superficial growth
 - d) Dusty layer
4. Fungitoxic property of cercosporin is destroyed by
 - a) Copper oxide
 - b) B₆
 - c) Pyridoxin
 - d) a&b
5. Who for the first discovered antibiotics
 - a) Alexander Flemming
 - b) Stanley
 - c) Stakmann
 - d) Louis Pasteur
6. Spore balls are formed in
 - a) Tolyposporium
 - b) Sphacelotheca
 - c) Tilletia
 - d) Urocystis
7. Which of the nutrient is supplied by mycorrhiza to the plant?
 - a) Nitrogen
 - b) Phosphorus
 - c) Sulphur
 - d) Iron
8. Taphrina causes the disease
 - a) Tomato leaf curl
 - b) Chilli leaf curl
 - c) Peach leaf curl
 - d) Potato leaf curl
9. Plant disease is written by
 - a) B.B.Mundkur
 - b) R.S.Singh
 - c) E.J.Butler
 - d) R.S. Mehrotra
10. Albugo is a
 - a) Obligat parasite
 - b) Facultative parasite
 - c) Saprophyte
 - d) Predator
11. Primary source of infection to green ear disease of Bajra is
 - a) Insect
 - b) Soil
 - c) Air
 - d) Seed and soil
12. Wheat rust life cycle in India was given by
 - a) E.J.Butler
 - b) M.J.Thirumalachar
 - c) K.C.Mehta
 - d) R.Prasad
13. Brown spot of maize is caused by
 - a) *Sclerospora sorghi*
 - b) *Physoderma maydis*
 - c) *Alternaria solani*
 - d) *Cercospora perforans*
14. Sporidia forms H shaped structures in
 - a) Tolyposporium
 - b) Sphacelotheca
 - c) Tilletia
 - d) Urocystis
15. Linseed rust is caused by
 - a) Uromyces
 - b) *Melampsora lini*
 - c) Physoderma
 - d) Ravenelia
16. Solar energy treatment for the control of loose smut of Wheat was given by
 - a) Shrivdle
 - b) Luthra and Sattar
 - c) Mitra
 - d) Butler

17. Systemic fungicides was discovered by
a) Van schleming and Kulka b) Millardet c) Tillet d) Prevost
18. The foul smell of bunt infected wheat is due to
a) Trimethyl amine b) Ammonia c) Ethylene d) Triethyl amine
19. The mycorrhizal fungi was discovered by
a) Morten b) Frank c) Smith d) Micheli
20. Root parasite of Bajra is
a) Cuscuta b) Striga c) Orobanche d) Loranthus
21. In plains of India which wheat rust appear first
a) Black stem rust b) Orange rust c) Yellow rust d) Orange and yellow
22. Root rot of Papaya could be controlled by application of
a) Bordeaux mixture b) Dithane M-45 c) Benlate d) Calixin
23. Yellow vein mosaic of Bhendi was reported by
a) Jha and Mishra b) Uppal *et al* c) Mayer d) Berkeley
24. T-Toxin affect
a) Chloroplast b) Mitochondria c) Electron transport d) Ribosomes
25. Black tip of mango is caused by
a) Pythium b) Boron deficiency c) Air pollution d) Zinc deficiency
26. *Tolyposporium ehrenbergii* causes
a) Smut of sugarcane b) Grain smut of Sorghom
c) Bajra smut d) Long smut of sorghum
27. *Tolyposporium penicillariae* cause
a) Smut of sugarcane b) Grain smut of Sorghum
c) Bajra smut d) Head smut of sorghum
28. Whip smut of sugarcane is caused by
a) *Ustilago nuda* b) *Ustilago hordei*
c) *Urocýotis cepulae* d) *Ustilago scitaminae*
29. Leveillula is a
a) Ectoparasite b) Endoparasite c) a and b d) None of the above
30. Downy mildew of maize is caused by
a) *Peronoscleropsora heterophogonii* b) *Perenospora trigonella*
c) *Sclerospora graminicola* d) *Sclerospora sacchari*
31. Tobacco mosaic virus was first reported by
a) Smith b) Bawden c) Mayer d) Beijerinck

32. Stripe disease of barley is caused by
a) *Drechslera gramineum* b) *Drechslera oryzae*
c) *Puccinia striiformis* d) None of the above
33. Alexander Fleming (1929) discovered
a) Streptomycetease b) Penicillin c) Tyrocidine d) Griseofulvin
34. Death of tissue in virus infected plant is described as
a) Mottling b) Mosaic c) Necrosis d) Curling
35. Carborundum powder is
a) Silicon carbide b) Aluminium oxide
c) Diatomaceous earth d) Calcium carbonate
36. Secondary spread of ergot of bajra is through
a) Seed b) Air c) Insect d) b and c
37. Indian journal of mycology and plant pathology is published from
a) IARI, New Delhi b) Botany department, Lucknow University
c) R.C.A.Udaipur d) Botany department, Madras University
38. Wilt of Arhar is caused by
a) Verticillium b) Fusarium c) Xanthomonas d) Meloidogyne
39. Thaumatin like protein
a) PR-4 b) PR-3 c) PR-7 d) PR-5
40. TMV resistance gene
a) N¹ b) N² c) RPP5 d) RPM1
41. The microorganism used in brewing industry is
a) Aspergillus b) Yeast c) Rhizobium d) Virus
42. The plant disease caused by an algae is
a) Blue mold of tobacco b) Red rust of tea c) Aster yellows d) None of the above
43. A bacterium is devoid of
a) Chlorophyll b) Well defined nucleus c) Cell wall d) Both a and b
44. A virus particle with both nucleic acid and protein coat is known as
a) Virion b) Viroid c) Capsid d) All the above
45. Lichen is an association between
a) Algae and Fungi b) Bacterium and Fungus
c) Fungus and nematode d) Fungus and virus
46. Rusts belongs to sub division
a) Zygomycotina b) Ascomycotina c) Basidiomycotina d) Deuteromycotina
47. Turkey-X disease in poultry birds is caused by

- a) *Aspergillus flavus* b) *Fusarium* c) *Penicillium* d) *Claviceps*
48. Sporangium on germination produce vesicle in genera
- a) *Phytophthora* b) *Pythium* c) *Sclerospora* d) *Perenospora*
49. *Phytophthora* belongs to the family
- a) *Peronosclerosporaceae* b) *Pythiaceae* c) *Peronosporaceae* d) *Albuginaceae*
50. *Rhizopus* belongs to class
- a) Oomycetes b) Zygomycetes c) Trichomycetes d) Ascomycetes
51. *Phyllactinia* causes the disease
- a) Powdery mildew b) Downy mildew c) Leaf spot d) Blight
52. *Tilletia* causes the disease
- a) Rust b) Smut c) Bunt d) Karnal Bunt
53. Resistance genes are not noticed in
- a) Virus b) Bacteria c) MLO^S d) None
54. Flag smut of wheat could be controlled by
- a) Seed treatment with vitavax b) Spraying with vitavax
c) Soil application with vitavax d) Above all
55. The indicator plant used for citrus exocortosis viroid
- a) Kagzi lime b) Sweet orange c) Trifoliolate orange d) Rangapur lime
56. Cyanophages contain
- a) ss RNA b) ss DNA c) ds linear DNA d) ds circular DNA
57. International committee for the taxonomy of viruses is set up
- a) 1947 b) 1966 c) 1986 d) 1968
58. The term appressorium is coined by
- a) Muller b) Frank c) Emett d) Parbery
59. Sub cuticular mycelia growth is seen in
- a) *Venturia inequalis* b) *Diplocarpon rosae* c) a&b d) None
60. Four duch rules is given by
- a) Van Everdingen b) Cook c) Wallin d) Hyre
61. Indian stem rust rules are formulated by
- a) Nagarajan b) Singh c) K.C.Mehta d) a&b
62. To which group Dithane Z-78 belongs
- a) Organomercurial b) Dithiocarbamic acid
c) Heterocyclic nitrogenous compound d) None of these

63. *Mykes in Mycology* means study of
- a) Bacteria b) Fungi c) Virus d) Mushroom
64. Bimodal curve is shown by
- a) Wilt b) Rust c) Pine blister rust d) Smut
65. Who proved that virus could pass through filters with pores small enough to retain bacteria
- a) Stanley b) Iwanowski c) Mayer d) Berkley
66. Gelatin plate technique was discovered by
- a) Burill b) Fanny Hesse c) Robert Koch d) Louis Pasteur
67. Botulism is caused by species of
- a) Bacillus b) Pseudomonas c) Agrobacterium d) Clostridium
68. Bacilli are
- a) Spiral shaped b) Spherical shaped c) Rod shaped d) None of the above
69. Yellow pigment in the culture is produced by
- a) Pseudomonas b) Xanthomonas c) Erwinia d) Agrobacterium
70. Phycomycetes belong to
- a) Fungi b) Bacteria c) Yeasts d) None of the above
71. Agar- Agar is produced from
- a) Nostoc b) Macrocyctis c) Gelidium d) Oscillatoria
72. In fermentation industry, Pasteurization is done at temperature
- a) 90.7 °C b) 100.0 °C c) 62.8 °C d) 80.0 °C
73. The sub-division ends with
- a) Mycetes b) ales c) mycetidae d) mycotina
74. Acervuli are formed in order
- a) Moniliales b) *Mycelia sterilia* c) Melanconiales d) Sphaeropsidales
75. Physiological specialization in stem rust of wheat is shown by
- a) Eriksson b) Stakman c) Orton d) Nelson
76. Fungicides which are absorbed into the system of plant and move to the remote site of infection are known as
- a) Systematic b) Systemic c) Dressers d) Fungistatic
77. Zoospores of Oomycetes fungi are
- a) Biflagellate b) Uniflagellate
- c) Uniflagellate (Tinsel type) d) Uniflagellate (Whiplash type)

78. Choose the correct statement

- a) Zoospores of chytridiomycetes and hyphochytridiomycetes are uniflagellate but tinsel type in former and whiplash type in later
- b) Both the above mentioned classes have tinsel type flagellum
- c) Both the classes have whiplash type flagellum

79. Seed potato is not transported from Darjeeling area to other parts of the country because of

- a) Domestic quarantine
- b) High transport cost involved
- c) It does not perform well in the plains

80. The fungi-imperfecti are classified under the class

- a) Oomycetes
- b) Zygomycetes
- c) Deuteromycetes
- d) Ascomycetes

81. Hermaphroditic fungi are those in which

- a) Each thallus bears both male and female organs
- b) Some thalli bears only male and some thalli bear only female organs.
- c) Sexually functional structures are produced which are morphologically distinguishable as male or female

82. White rust fungus, *Albugo candida* belongs to

- a) Basidiomycetes
- b) Ascomycetes
- c) Oomycetes
- d) Deuteromycetes

83. Which pathogen is associated with the discovery of Bordeaux mixture

- a) *Plasmodiophora brassicae*
- b) *Plasmopora viticola*
- c) *Peronospora destructor*

84. Which pathogen is associated with Irish Famine?

- a) *Bremia lactucae*
- b) *Sclerospora graminicola*
- c) *Phytophthora infestans*

85. Sexual spores in oomycetes are known as oospores while asexual spores as

- a) Zoospores
- b) Ascospores
- c) Basidiospores
- d) Conidiospores

86. Green ear disease (downy mildew) of bajra is caused by

- a) *Erysiphe graminis*
- b) *Albugo candida*
- c) *Sclerospora graminicola*
- d) *Rhizopus oryzae*

87. Damping off seedlings is caused by

- a) Only *Pythium aphanidermatum*
- b) *Pythium* and *Phytophthora* spp
- c) Many fungi including *Pythium* spp.
- d) *Phytophthora*

88. Obligate organisms are those organisms which can obtain food from:

- a) Only living protoplasm
- b) Only dead organic material
- c) From living as well as dead organic material depending upon the need
- d) All

89. Ascomycetes and Basidiomycetes are known as

a) Higher fungi b) Lower fungi c) Imperfect fungi d) Myceli sterilia

90. Peach leaf curl is caused by

a) *Taphrina epiphylla* b) *Taphrina klebahnii* c) *Taphrina deformans*

91. Which one of the following is downy mildew fungus?

a) *Peronospora parasitica* b) *Erysiphe graminis*

c) *Puccinia graminis tritici* d) *Uncinula nicator*

92. Unspecilized parasites that are able to survive indefinetly as saprophytes are

a) Soil invaders b) Soil transients c) Soil inhabitants d) Root inhabiting fungi

93. Viruses which can kill the bacteria are known as

a) Virion b) Antibodies c) Bacteriophages d) None of the above

94. The size of viroids ranges from

a) 250-370 b) 200-500 c) 375-435 d) 300-450

95. Powdery mildew of apple is caused by

a) *Erysiphae polygoni* b) *Podosphaera leucotricha*

c) *Sphaerotheca fuliginea* d) *Uncinula nicator*

96. Phloem cells of which infected virus plant produce fluorescence

a) Banana bunchy top virus b) African cassava mosaic virus

c) Tulip colour breaking virus d) Tobacco mosaic virus

97. Ascomycetes produce their asci in fruiting bodies known as

a) Pycnidia b) Acervuli c) Vesicle d) Ascocarp

98. Which one is not related to others?

a) Cleistothecium b) Perithecium c) Apothecium d) Trichothecium

99. Sclerotia are the primary survival structures of

a) *Phytophthora parasitica* b) *Phoma vexans*

c) *Sclerotinia sclerotiorum* d) *Sclerophthora* sp

100. Papaya bunchy top is caused by

a) Bacteria b) Mycoplasma like organisms c) Viruses d) Rickettsia

MODEL PAPER-7

1. Who is known as Reconstructor of Mycology
a) A.Fischer b) L.R.Tulsane c) E.J.Butler d) J.Kuhn
2. Father of forest pathology
a) R.Hartig b) Needham c) H.M.Ward d) Woronin
3. Emisan is a
a) Copper fungicide b) Organomercurial
c) Sulphur fungicide d) None of the above
4. Thiram is used as
a) Seed dresser b) Foliar spray c) Growth promoter d) Soil applicant
5. Karathane is a
a) Fungicide b) Insecticide c) Nematicide d) Bactericide
6. When a disease is more or less constantly present from year to year in a moderate to severe form, in a particular country or part of the earth then it is known as
a) Epiphytic b) Sporadic c) Pandemic d) Endemic
7. Microscope for the first time by
a) Theophrastus b) Shakespeare c) Leeuwenhoek d) Micheli
8. Paddy blast is introduced in India during 1918 by
a) South east Asia b) Europe c) Australia d) England
9. The father of Experimental Plant Pathology is considered to be
a) E.J.Butler b) J.F.Dastur c) G.S.Kulkarni d) B.B.Mundkur
10. The abnormal increase in the size of a plant organ is known as
a) Hyperplasia b) Hypertrophy c) Both a and b d) None of the above
11. The term necrosis indicates
a) Death of cells b) Curling c) Blighting d) Atrophy
12. Dying of plant organs, especially stems or branches from tip to backward is known as
a) Sun scald b) Die-back c) Wiltling d) Necrosis
13. Gram negative bacteria contain how many rings in their flagella
a) 1 b) 2 c) 3 d) 4
14. Diseases which take several years to complete their life cycle
a) Polyetic b) Polycyclic c) Monocyclic d) None
15. The most destructive phase of the bacterial blight disease of rice is known as
a) Kresak b) Necrosis c) Blight d) Die-back
16. Brown rot or wilt disease of potato is caused by

- a) Fungus b) bacterium c) Nematode d) Virus
17. Diseases with secondary disease cycle is know as
a) Polycyclic diseases b) Monocyclic diseases c) a&b d) None
18. Stalk rot of maize is caused by
a) *Erwinia chrysanthemum pv. zea* b) *Xanthomonas citri*
c) *Clavibacter xyli* d) *Ralstonia solanacearum*
19. Plasmodiophora brassicae causal agent of club root of crucifers was first fully described by
a) Iwanowski b) Woronin c) K.C.Mehta d) Curtis
20. Raising the pH of the field soil to 7 or above by adding lime (Calcium carbonate) gives good control of
a) Wart diseases of potato b) Late blight of potato
c) Soft rot of crucifers d) Club root of crucifers
21. Late blight of potato was introduced in India for the first time in
a) Shimla hills b) Darjeeling c) Nilgiri hills d) None of the above
22. Blight of Colocasia is caused by
a) Phytophthora palmivora b) Alternaria solani
c) Phytophthora colocasia d) Albugo candida
23. Seedling blight of castor caused by Phytophthora parasitica was first recorded and studied by
a) Mathur b) Dastur c) Mundkur d) K.C.Mehta
24. Koleroga disease of areca palms is also known as
a) Mahali disease b) Bud rot c) Stem rot d) Collar rot
25. Systemic infection of *Albugo candida* in crucifers results in to
a) Hypertrophy b) Gummosis c) Blight d) Rotting
26. Green ear disease of bajra is also known as
a) Bunchy top b) Witches broom c) Downy mildew d) None of the above
27. Downy mildew fungi are
a) Only seed borne b) Only soil borne
c) Both seed and soil borne d) None of the above
28. Downy mildew of crucifers is caused by
a) *Albugo candida* b) *Peronospora parasitica*
c) Both a and b d) None of the above
29. The source of primary inoculum of *Pseudoperonospora cubensis* is
a) Oospores b) Sporangia c) Dormant mycelium in or on seed d) Zoospores

30. Which pathogen caused heavy losses to wine industry in France due to its epidemic in 1875?

- a) *Phytophthora infestans* b) *Helminthosporium oryzae*
c) *Plasmopora viticola* d) *Uncinula nicator*

31. Resting structures of *Protomyces macrosporus* causing stem gall of coriander are

- a) Oospores b) Ascospores c) Chlamydospores d) None of the above

32. The period from spore landing to spore production

- a) Latent period b) Incubation period
c) Disease cycle d) Disease incidence

33. Leaf spot of turmeric is caused by

- a) *Cercospora* sp. b) *Fusarium equiseti*
c) *Taphrina maculans* d) *Phytophthora colocaseae*

34. Characteristic symptoms of soft rot of apple appear on

- a) Mature apples b) Green apples c) Both a and b d) None of the above

35. Branching of sporangiophores of *Plasmopora viticola* to the main axis is at

- a) Obtuse angle b) Acute angle c) Right angle d) None of the above

36. Erysiphe polygoni causes

- a) Downy mildew of peas b) Powdery mildew of ber
c) Downy mildew of jowar d) None of the above

37. Secondary spread of powdery mildews is generally carried out by

- a) Conidia b) Cleistothecia c) Perithecia d) Apothecia

38. Cleistothecia are the primary survival structures of Erysiphe graminis which survive in the

- a) Seed b) Soil c) Both a and b d) None of the above

39. Powdery mildew of Cucurbits is caused by

- a) *Erysiphe cichoracearum* b) *Sphaerotheca fuliginea*
c) Both a and b d) None of the above

40. Each cleistothecium of *Podosphaera leucotricha* contains

- a) 8 asci b) 4 asci c) 2 asci d) one ascus

41. *Podosphaera leucotricha* (powdery mildew of apple) survives in the form of

- a) Resting mycelium in the bud b) Encapsulated haustoria in the bud
c) Both a and b d) None of the above

42. Ring spot disease of sugarcane is caused by

- a) *Ascochyta* sp. b) *Colletotrichum falcatum*
c) *Clavibacter xyli* d) *Leptosphaeria sacchari*

43. The most common stage of the fungus causing stem rot of paddy is

- a) Ascigerous b) Myceloid c) Sclerotial d) Conidial

44. The sclerotia of ergot disease yield an alkaloid 'Ergotin' which when assimilated in the blood of man or cattle affects the

- a) Muscular system b) Respiratory system
- c) Nervous system d) None of the above

45. The asci of *Claviceps fusiformis* are cylindrical each of which contains 8 ascospores which are

- a) Filiform and hyaline b) Round c) Oval d) Square

46. The sphaecelia stage of *Claviceps purpurea* is also known as honey dew stage which is full of

- a) Conidia b) Ascospores c) Asci d) Perithecia

47. Sclerotia of *Claviceps purpurea* germinate to produce

- a) Mycelium b) Perithecia c) Conidia d) Honey dew

48. Major source of Primary inoculum of false smut of rice

- a) Conidia b) Sclerotia c) Ascospores d) None of the above

49. Apple scab disease which earlier was confined to Kashmir in India spread to Himachal Pradesh after

- a) 1943 b) 1965 c) 1973 d) 1985

50. The conidial cycle (Conidia-infection-conidia) of *Venturia inaequalis* is completed within

- a) 2-3 days b) 8-10 days c) 12-15 days d) 15-20 days

51. Apple scab fungus perpetuates through

- a) Perithecia b) Pycnidia c) Synnemata d) None of the above

52. Stem rot of Rozelle is caused by

- a) *Sclerotium rolfsii* b) *Sclerospora graminicola*
- c) *Sclerotinia sclerotiorum* d) *Sclerophthora macrospora*

53. Five kingdom classification was proposed by

- a) Hackel b) Whittaker c) Aristotle d) E.F. Smith

54. Which one is unrelated among the following?

- a) *Streptomyces* b) *Protomyces* c) *Pseudomonas* d) *Xanthomonas*

55. Rishitin is a phytoalexin produced by

- a) Tomato b) Potato c) Pea d) Soyabean

56. Covered smut of barley is caused by

- a) *Ustilago nuda tiritici* b) *Ustilago hordei*
- c) *Ustilago scitaminea* d) *Ustilago avenae*

57. The best way to control the disease spread of smut of sugarcane is to
- Remove the smutted whips from the field
 - Discourage the practice of rationing
 - Avoid planting of setts from smutted canes
 - All of them
58. Amphitrichos type of flagellar arrangement is seen in
- Erwinia*
 - Xanthomonas*
 - Pseudomonas*
 - Spirillum*
59. Bacteria growing at the temperature of 0-20° are called
- Thermophiles
 - Psychrophiles
 - Mesophiles
 - None
60. The term genophore was coined by
- Ris
 - Bateson
 - Mendal
 - Morgan
61. Paddy bunt disease is also known as
- Kernel smut
 - Partial bunt
 - Grain smut
 - Glume blotch
62. Malachite green is used to stain which part of bacteria
- Endospore
 - Cell wall
 - Cell membrane
 - Ribosomes
63. In which country was flag smut of wheat was observed for the first time
- India
 - USA
 - Australia
 - South Africa
64. Stripe rust of wheat is also known as
- Brown rust
 - Black rust
 - Yellow rust
 - Stem rust
65. Which of the following rusts is the earliest to appear on wheat in India?
- Black rust
 - Yellow rust
 - Brown rust
 - None of the above
66. Bean rust is caused by
- Uromyces fabae*
 - Uromyces phaseoli*
 - Melampsora lini*
 - None of the above
67. Alternaria leaf spot of mustard and rapeseed is caused by
- Only *Alternaria brassicae*
 - Only *Alternaria brassicola*
 - Both a and b
 - None of the above
68. Which of the combined seed treatments provide an effective control of stripe disease of barley?
- Vitavax + Thiram
 - Bavistin + Thiram
 - Captan + Thiram
 - Derosal + Thiram
69. Causal agent of leaf spot disease of rice caused by *Helminthosporium oryzae* is also known as
- Drechslera tetramera*
 - Drechslera oryzae*
 - Drechslera sporokiniana*
 - Drechslera graminea*

85. The book entitled “Fungicides in Plant disease control” has been written by
a) R.S.Singh b) B.B.Mundkur c) Y.L.Nene and P.N.Thapliyal
86. Floral parts are converted into greenish leaf like structure in monocots is called
a) Phyllody b) Green ear c) Greening d) Sterility
87. Ragi mottle streak is transmitted by
a) Leaf hopper b) Aphids c) Whiteflies
88. The term phytoalexin is coined by
a) Muller and Broger b) Frank c) Link d) Nelson
89. Aster yellows is caused by
a) Bacteria b) Virus c) Nematode d) Spiroplasma
90. Fragmentation of specialized hyphae gives
a) Conidia b) Basidia c) Oidia d) Zoospores
91. An example for enveloped virus is
a) Gemini virus b) Tomato spotted wilt virus c) Poty virus d) Closterovirus
92. PCR is invented by
a) Frankel b) Link c) Kary Mullis d) Morgan
93. Rhizoctonia root rot is common in
a) Acidic soil b) Alkaline soil c) Black soil d) Wet soil
94. Fusarium wilt is severe in
a) Alkaline soil b) Red soil c) Black soil d) Wet soil
95. Silent Spring book is written by
a) Vanderplanck b) Klessig c) Nelson d) Rachel carson
96. Tyloses are produced after infection in
a) Xylem b) Phloem c) Cambium d) Mesophyll
97. Rhizomorphs are formed by
a) Armillaria b) Rhizoctonia c) Verticillium d) Clavicepas
98. Spores produced by budding
a) Blastospores b) Chlamydo spores c) Arthrospores d) All
99. Characteristic leaf shredding symptoms of Downy mildew disease is found in
a) Grapes b) Ragi c) Jowar d) Cucumber
100. Magnetosomes contain
a) Fe_3O_4 b) FeO c) Fe_2O_2 d) Fe

MODEL PAPER-8

1. Anastomosis means is seen in
a) Rhizoctonia b) Ascochyta c) Fusarium d) Penicillium
2. X-bodies are produced by
a) Virus b) Bacteria c) Fungus d) MLO`S
3. Virus reproduces by
a) Replication b) Binary fission c) Budding d) Transformation
4. The characteristic of a pathogen being able to cause disease is termed as
a) Pathogenesis b) Pathogenecity c) Infection d) Penetration
5. The external or internal alterations occurring due to disease is referred as
a) Sign b) Symptom c) Syndrome d) Malformation
6. A.P.S stands for
a) American Phytopathological society b) American pathological society
c) American Plant Pathology summit d) None of the above
7. The word fungicide has derived from language
a) Greek b) Latin c) French d) German
8. The disease can be classified based on
a) Host plants affected and causal organism involved
b) Plant parts affected
c) Symptoms produced on the host plants
d) All of the above
9. Wart disease of potato caused by *Synchytrium endobioticum*
a) Endemic disease b) Epidemic disease c) Pandemic disease d) Sporadic disease
10. Which one of the following is involved in pathogenesis process?
a) Pre penetration b) Post penetration c) Penetration d) All of the above
11. The stem fungus *Puccinia graminis tritici* enters through
a) Stomata b) Lenticels c) Trichomes d) Hydathodes
12. A thick strand of somatic hyphae resembling a rod top is generally termed as
a) Sclerotium b) Stroma c) Rhizomorph d) Haustorium
13. A mat of hyphae giving rise to short conidiophores closely packed together is termed as
a) Aecium b) Acervulus c) Synemma d) Pycnidium
14. Green ear is a proliferation of flower parts into greenish leaf like structure generally noticed in

- a) Ragi and Bajra b) Rose and Chrysanthemum c) Red gram and Safflower
15. Measurement of plant pathogen is done by
 a) Dry weight method b) Cell volume method
 c) Cell number method d) All the above
16. The principal method of controlling plant disease are
 a) Avoidance b) Exclusion c) Eradication d) All the above
17. Most of the virus diseases are more virulent when the temperature is in between
 a) 5 to 15 °C b) 20 to 25 °C c) 15 to 20 °C d) 0 to 10 °C
18. Potato dextrose agar do not contain
 a) Dextrose b) Agar-Agar c) Beef extract d) Potato
19. The mechanism involved in spore discharge is
 a) Ejection b) Oozing c) Shooting d) All of the above
20. PR-2 protiens
 a) β -1,3 glucanases b) chitinase c) thionin d) defensin
21. The chain of events involved in disease development, including the stages of the pathogen and effect of disease on the host-this phenomenon is generally termed as
 a) Life cycle b) Disease cycle c) Infection cycle d) None of the above
22. A compound which prevents fungal growth without killing fungus is termed as
 a) Fungicide b) Fungistatic c) Fumigant d) None of the above
23. Asexual spore of the basidiomycetes fungus is
 a) Aeciospore b) Pycnium c) Basidium d) All the above
24. The fruiting body basidiocarp of basidiomycetes is produced by
 a) Primary mycelium b) Secondary mycelium
 c) Tertiary mycelium d) All the above
25. Zero stage of fruiting body in basidiomycetes in
 a) Aecium b) Basidium c) Uredium d) None of above
26. Sterile threads arises at the base of the perithecium, upward direction between asci
 a) Periphysis b) Paraphysis c) Periphysoid d) None of the above
27. Cellulosic cell walled pathogen is
 a) Pythium b) Phytophthora c) Bremia d) All the above
28. The fungal pathogen containing chitin in their cell wall in
 a) *Phytophthora infestans* b) *Sclerospora graminicola*
 c) *Peronospora brassicae* d) *Claiiceps purpurea*
29. The sexual spore of *Pythium aphanidermatum* is
 a) Zoospore b) Zygospore c) Oospore d) Ascospore

30. The sexual spore of *Rhizopus* is
 a) Zoospore b) Aplanospore c) Chlamydospore d) Zygosporangium
31. The sexual spore of *Gibberella fujikuroi* is
 a) Zoospore b) Teliospore c) Ascospore d) None of the above
32. Vegetative spore of *Fusarium* is
 a) Rhizoids b) Rhizomorphs c) Sclerotium d) Chlamydospore
33. Long distance moving spores in Rust
 a) Teliospore b) Aeciospore c) Pycniospore d) Uredospores
34. Clamp connection is most common in case of
 a) Rusts b) Smuts c) Powdery mildew d) All
35. Clamp connection is most common in case of
 a) *Ustilago tritici* b) *Uromyces habsonii*
 c) *Urocladium spp* d) *Uncinula nicator*
36. The spores responsible for wheat rust in India is
 a) Teliospore b) Uredospore c) Aeciospore d) All the above
37. Dikaryotic spores, smooth born in chains in Rust fungi is
 a) Teliospore b) Uredospore c) Pycniospore d) All the above
38. The multicelled spore in case of Rust is
 a) Teliospore b) Aeciospore c) Uredospore d) Basidiospore
39. The dormant spore which is vegetative spore but not asexual spore is
 a) Sclerotia b) Chlamydospore c) Mycelium d) All the above
40. Gametangial copulation mainly observed in
 a) *Phytophthora* spp b) *Pythium* spp c) *Claviceps* d) All the above
41. The Herbarium Cryptogamiae Indian Orientalis was first created by
 a) B.Prevost b) E.J.Butler c) B.Mundkar d) K.C.Mehta
42. The sterilization temperature in autoclave for 15 minutes is
 a) 122⁰C b) 121⁰C c) 121.5⁰C d) 121.6⁰C
43. Complete root phanerogamic parasite
 a) Orobanchae b) *Striga* c) Mistletoes d) *Cuscuta* spp
44. Complete stem parasite
 a) *Striga* b) Dodder c) Orobanchae d) Mistletoes
45. Complete root parasite
 a) Dodder b) *Striga* c) Mistletoes d) Orobanchae
46. Partial stem parasite
 a) *Cuscuta* spp b) Orobanchae c) *Striga* d) Mistletoes

47. The genus directly germinates in the family Peronosporaceae
a) Bremia b) Peronospora c) Peronosclerospora d) All the above
48. The slime molds comes under the class
a) Plasmodiophoromyces b) Myxomycetes c) Chytridiomycetes d) Oomycetes
49. The plasmodium or plasmodium like structure is seen in division
a) Eumycota b) Myxomycota c) Both a & b d) None of the above
50. The genus Olpidium and Physoderma belongs to the order
a) Chytridiales b) Physarales c) Plasmodiophorales d) None of the above
51. Which one of the division belongs to lower fungi?
a) Myxomycota b) Eumycota c) Both a & b d) None of the above
52. Bread molds belongs to class
a) Hemiascomycetes b) Zygomycetes c) Oomycetes d) Pyrenomycetes
53. The mycorrhizal fungi producing spores singly in soil or on sporocarp containing zygospores, chlamydo-spore or sporangia belongs to class
a) Mucorales b) Endogonales c) Saproleginales d) Peronosporales
54. The imperfect fungi wherein sexual reproduction and structures lacking/unknown comes under subdivision
a) Ascomycotina b) Zygomycotina c) Deuteromycotina d) Mastigomycotina
55. The rust and smut fungi belongs to the class
a) Hemibasidiomycetes b) Hymenomycetes c) Agnomycetes
56. The club shape fungi is the special characteristic of subdivision
a) Ascomycotina b) Deuteromycotina c) Basidiomycotina
57. The wood decaying and root rot fungi grouped under class
a) Hymenomycetes b) Agnomycetes c) Hemibasidiomycetes
58. Nucleic acid content of plant virus consists of
a) 5 to 40 % b) 60 to 95% c) < 5% d) All the above
59. Protein content of plant virus consists of
a) 5 to 40 % b) 60 to 95% c) < 5% d) All the above
60. The spherical shaped plant virus contain
a) Higher percentage of nucleic acid b) Lower percentage of nucleic acid
c) Both a and b d) None of the above
61. Elongated shape plant virus contain
a) Higher percentage of nucleic acid b) Lower percentage of nucleic acid
c) Both a and b d) None of the above
62. Nucleic acids of most of the plant virus consists of

a) ss RNA b) ss DNA c) ds RNA d) ds DNA

63. RNA consists of

a) Ribose b) Phosphoric acid c) Base d) All the above

64. DNA consists of

a) Deoxyribose b) Phosphoric acid c) Base d) All the above

65. Purines are made up of

a) Adenine b) Guanine c) Cytosine d) Both a and b

66. In RNA viruses, thymine is replaced by

a) Uracil b) Guanine c) Adenine d) Cytosine

67. The order Homoptera includes

a) Aphids b) Leaf hoppers c) Whiteflies d) All the above

68. The insects which feed on infected plants for several minutes / hours to few days before they accumulate the enough virus for transmission. These type of viruses are

a) Non persistent b) Semi persistent c) Persistent d) None of the above

69. The stylet borne viruses persist in the vector for only few minutes to hours are known as

a) Non persistent b) Semi persistent c) Persistent d) None of the above

70. Viruses which persist in vectors for few days are known as

a) Semi persistent b) Persistent c) Non persistent d) None of the above

71. Viruses which multiply in respective vector known as

a) Propagative virus b) Multiplying virus c) Both a and b d) None of the above

72. Leaf hopper and plant hopper transmitted virus causes disturbances in plants that arise primarily in the region of

a) Phloem b) Xylem c) Both a and b d) None of the above

73. Fungi which transmit plant viruses are

a) Olpidium spp b) Polymyxa spp c) Spongospora spp d) All the above

74. Nepo viruses are

a) Grape fan leaf virus b) Tobacco ring spot virus

c) Both a and b d) None of the above

75. Netu viruses are

a) Tobacco rattle virus b) Pea early browning virus

c) Both a and b d) None of the above

76. Plant virus group containing –ve ss RNA

a) Rhabdovirus b) Tospovirus c) Tenuivirus d) All the above

77. The plant virus containing ss DNA virus are

a) Banana bunchy top virus b) Tomato leaf curl virus

- c) Pumpkin yellow vein mosaic virus d) All the above
78. The genomic content of Fiji virus is
 a) ss RNA b) ds RNA c) ss DNA d) ds DNA
79. The genomic content of Tobamovirus is
 a) +ve ss RNA b) -ve ss RNA c) ss DNA d) ds DNA
80. Use of mild strain for protection of plants against to severe strain of same virus is called
 a) Crop rotation b) Roughing c) Cross protection d) None of the above
81. The beetles transmitted viruses are
 a) Tymovirus b) Camovirus c) Bromovirus d) All the above
82. The mites species which transmit plant viruses are
 a) *Aceria cajani* b) *Aceria tulipae* c) Both a and b d) None of the above
83. The process in which conversion of RNA to DNA is called
 a) Reverse transcription b) Transmission c) Transcription d) Both a and b
84. Circular nature of mini viroid was shown using
 a) Simple microscope b) Electron microscope
 c) Compound microscope d) All the above
85. Genome content of viroid is
 a) ss RNA b) ds RNA c) ss DNA d) ds DNA
86. Antibody is made up of only
 a) Proteins b) Polysaccharides c) Lipids d) All the above
87. Antigen consists of
 a) Proteins b) Polysaccharides c) Lipids d) All the above
88. Antibodies are secreted by
 a) B lymphocyte b) Erythrocyte c) Both a and b d) None of the above
89. Antibodies are divided into
 a) 2 class b) 5 class c) 3 class d) 1 class
90. The measure of overall stability of the complex between antibodies and antigens is called
 a) Avidity b) Affinity c) Titer d) None of the above
91. The measure of strength of binding of epitope to an antibody is called
 a) Avidity b) Affinity c) Titer d) None of the above
92. The relative measure of the concentration of specific antibody in an antiserum is called as
 a) Avidity b) Affinity c) Titer d) None of the above
93. Mathew's plant virology is written by
 a) R.Hull b) REF Mathews c) Stanley d) None of the above
94. The density gradient centrifugation as a method for purifying virus was first developed by

a) Adam and Clark, 1977 b) Brakke, 1951 c) Hull, 1995 d) Stanley, 1936

95. A virus having multipartite

a) Alfalfa mosaic virus b) Tobacco mosaic virus
c) Cassava mosaic virus d) None of the above

96. The genome size of potyvirus is

a) 2 kb b) 3 kb c) 8.5-10 kb d) 15-20 kb

97. A citrus tristeza virus belongs to

a) Closteroviridae b) Geminiviridae c) Bromoviridae d) Bunyaviridae

98. Begomoviruses are

a) Tomato leaf curl virus b) Cotton leaf curl virus
c) Bhendi yellow vein mosaic virus d) All the above

99. Papaya ring spot virus transmitted by several aphid spp in the

a) Persistent manner b) Semi persistent c) Non persistent d) All the above

100. Zucchini yellow mosaic virus is transmitted by

a) Whitefly b) Aphid c) Thrips d) Leaf hoppers

MODEL PAPER-9

1. The term clostero viruses means
 - a) Thread like viruses
 - b) Rod like viruses
 - c) Gemini particles
 - d) None of the above
2. Genome size of clostero viruses are
 - a) 15-20 kb
 - b) 5-16 kb
 - c) < 2 kb
 - d) 80 kb
3. Tomato leaf curl virus disease is managed by using
 - a) Trap crop
 - b) Yellow traps
 - c) Insecticides
 - d) All the above
4. Abutilon mosaic virus transmitted by
 - a) *Bemisia tabaci*
 - b) *Aphis gossypii*
 - c) *Myzus persicae*
 - d) None of the above
5. Grassy shoot of sugarcane is transmitted by
 - a) Leafhoppers
 - b) Whiteflies
 - c) Thrips
 - d) Aphids
6. Inclusion bodies due to virus infection are
 - a) Crystalline
 - b) Amorphous
 - c) Both a and b
 - d) None of the above
7. The parenchyma close to the veins in green and rest of the lamina surface shows chlorosis is called as
 - a) Vein banding
 - b) Vein clearing
 - c) Viriscence
 - d) Fern leaf
8. Small out growth from the lower surface of leaf is called as
 - a) Enations
 - b) Tumours
 - c) Both a and b
 - d) None of the above
9. Thermal inactivation point of TMV is
 - a) 0 °C
 - b) 50 °C
 - c) 90 °C
 - d) 25 °C
10. Dilution end point of TMV is
 - a) 1:1
 - b) 1: 10000
 - c) 1: 10
 - d) 1:100000
11. Viruses that contain ds RNA is
 - a) Fiji virus
 - b) Oryza virus
 - c) Wound tumour virus
 - d) All the above
12. Double stranded DNA isometric virus is
 - a) Cauliflower mosaic virus
 - b) Tomato mosaic virus
 - c) Tomato leaf curl virus
 - d) Tomato spotted wilt virus
13. Single stranded isometric virus is
 - a) Tomato leaf curl virus
 - b) Cotton leaf curl virus
 - c) Pumpkin yellow vein mosaic virus
 - d) Banana bunchy top virus
14. TMV measures about
 - a) 18 x 300 nm
 - b) 15 x 30 nm
 - c) 25 nm
 - d) None of the above
15. Plant viruses move from cell to cell through
 - a) Stomata
 - b) Lenticels
 - c) Cuticle
 - d) Plasmodesmata

16. Viruses are

- a) Glycoprotein b) Lipoprotein c) Sulfoprotein d) Nucleoprotein

17. Rugose symptoms is caused by

- a) Potato virus X b) Potato virus Y c) Both d) None

18. In 1845, the late blight of potato destroyed the potato crop of Ireland was caused by

- a) *Phytophthora infestans* b) *Alternaria solani*
c) *Pythium aphanidermatum* d) *Ralstonia solanacearum*

19. In 1943, Bengal had faced a serious famine which cause a great loss in rice yield caused by

- a) *Helminthosporium oryzae* b) *Pyricularia oryzae*
c) *Colletotrichum falcatum* d) *Fusarium udum*

20. Tick out the wrong pair

- a) Endemic- Confined to a particular country, district or location
b) Epidemic - The diseases which appear very virulently among the people
c) Epiphytotic – The diseases which occurs widely but periodically
d) Pandemic – disease not prevalent through the country, continent or the world

21. Select the correct order of events

- a) Incubation period – invasion – colonization – infection
b) Invasion-incubation period– colonization- infection
c) Colonization- infection-incubation period– invasion
d) Infection-incubation period– invasion– colonization

22. Who is the father of Plant Pathology?

- a) T.J.Burill b) Needham c) Anton de Bary d) E.J.Butler

23. Potato spindle tuber viroid consist of how many nucleotides

- a) 359 b) 241 c) 276 d) 423

24. TMV capsid consists of how many capsomers

- a)3120 b) 1230 c) 2130 d) 0123

25. The first Indian scientist who collected and identified fungi in India

- a) E.J.Butler b) K.R.Kirtikar c) J.F.Dastur d) K.C.Mehta

26. Kolerega or Mahali disease of arecanut is caused by

- a) *Phytophthora* b) *Pythium* c) *Fusarium* d) *Ustilago*

27. Potato leaf roll virus is under the genus

- a) Luteo viruses b) Poty viruses c) Comoviruses d) Carla viruses

28. Select the wrong pair

- a) Hypertrophy: abnormal increase in size of organ
b) Hyperplasia: abnormal increase in number of cells of the organ

- c) Atrophy: inhibition of growth of dwarfing
- d) Necrosis: death of plant

29. A bacteria which have a large number of flagella all over the cell is categorized in

- a) Atrichous
- b) Amphitrichous
- c) Lophotrichous
- d) Peritrichous

30. In bacteria, variability is caused by

- a) Conjugation
- b) Transformation
- c) Transduction
- d) All of these

31. The scientific name of potato black leg pathogen is

- a) *Erwinia amylovora*
- b) *Erwinia carotovora*
- c) *Agrobacterium tumefaciens*
- d) *Ralstonia solanacearum*

32. J.C.Luthra and his associates developed the solar heat treatment of wheat seeds for the control of

- a) Black rust
- b) Loose smut
- c) Seed gall
- d) Brown rust

33. Citrus canker (Lesions) which originated from China is caused by pathogen

- a) *Xanthomonas campestris pv citri*
- b) *Albugo candida*
- c) *Erwinia amylovora*
- d) *Claviceps fusiformis*

34. Select the wrong pair

- a) Black arm of cotton: *Xanthomonas campestris pv malvacearum*
- b) Bacterial leaf blight of rice: *Xanthomonas campestris pv oryzae*
- c) Red stripe of Sugarcane: *Pseudomonas rubrilineans*
- d) Ergot of Bajra: *Erwinia carotovora*

35. Common scab of potato can be controlled by reducing pH below 5.2 is caused by the pathogen

- a) *Streptomyces scabies*
- b) *Streptomyces griseus*
- c) *Streptomyces aureofaciens*
- d) *Streptomyces flaveolus*

36. Citrus greening disease mainly confined to

- a) North India
- b) South India
- c) East India
- d) West India

37. Select the disease (s) caused by Mycoplasma like organisms (MLO)

- a) Brinjal little leaf
- b) Rice yellow dwarf
- c) Sugarcane grassy shoot
- d) All of these

38. Select the organism which cannot synthesize protein by own enzymes

- a) Bacteria
- b) Mycoplasma
- c) RLO
- d) Virus

39. Bacterial leaf blight of rice caused by *Xanthomonas campestris pv oryzae* is commonly controlled by seed treatment and foliar spray of the chemical in India

- a) Streptocycline
- b) Agrimycin
- c) Aretan
- d) RH-893

40. Tundu disease (Yellow ear rot) of Wheat caused by *Clavibacter tritici* is usually associated with

- a) *Heterodera avenae* b) *Anguina tritici* c) *Melodogyne incognita* d) *Pratylenchus* sp
41. Sandal spike disease of sandal (*Santalum album*) is caused by
 a) Bacteria b) Fungi c) MLO d) Virus
42. The adjacent cells of the same fungal hypha brought into communication with each other by means of loops is known as
 a) Transduction b) Transformation c) Clamp connection d) Conjugation
43. Tick out the sexual spores of fungi
 a) Chlamydospores b) Sporangiospores c) Zoospores d) Zygosporangia
44. How many ascospores are enclosed in the mother cell, the ascus in ascomycetes?
 a) 4 b) 6 c) 8 d) 10
45. The ascus is a sexual fruit of ascomycetes having a globose shape but no ostiole (opening) known as
 a) Cleistothecia b) Perithecia c) Apothecia d) All of these
46. The perfect (Sexual) stage not seen in
 a) Zygomycotina b) Ascomycotina c) Basidiomycotina d) Deuteromycotina
47. The black wart disease of potato specially confined to Darjeeling hills is caused by the pathogen
 a) *Synchytrium endobioticum* b) *Plasmodiophora brassicae*
 c) *Sclerospora sorghi* d) *Plasmopora viticola*
48. 'White blisters of crucifers is caused by the pathogen
 a) *Pythium debaryanum* b) *Albugo candida*
 c) *Sclerospora sorghi* d) *Plasmopora viticola*
49. The perfect stage of *Colletotrichum falcatum* (causes red rot of sugarcane) is
 a) *Glomerella tucumanensis* b) *Glomerella cingulata*
 c) *Glomerella lindemuthianum* d) None of these
50. Select the wrong pair
 a) Ergot of Bajra: *Claviceps fusiformis* b) False smut of rice: *C.oryzae*
 c) Ergot of rye: *C.purpurea* d) Red rot of sugarcane: *Colletotrichum gloesporoides*
51. In uredinales basidia usually bearing how many numbers of basidiospores
 a) 2 b) 4 c) 6 d) 8
52. Select the wrong pair
 a) Father of Mycology : P.A.Micheli b) Father of phyto bacteriology: E.F.Smith
 c) Father of Epidemiology: J.E.Vanderplanck d) Father of Plant Pathology: E.J.Butler
53. Who is the father of Plant Pathology in India?
 a) E.J.Butler b) K.C.Mehta c) B.B.Mundkur d) R.Prasad
54. *Plasmodiophora brassicae* causes the club root disease of crucifers can be controlled by

a) Raising pH of soil b) Decreasing pH of soil c) Both a and b d) None of these

55. The downy mildew of Bajra is caused by

- a) *Sclerospora sorghi* b) *Sclerospora sacchari*
c) *Sclerospora graminicola* d) *Perenospora parasitica*

56. The spores which are produced typically by the binucleate mycelium and mainly function as repeating spores for the spread of rust disease in wheat is called

- a) Aeciospores b) Basidiospores c) Urediospores d) Teleutospores

57. Promycelium in rust fungi bears

- a) Basidiospores b) Aeciospores c) Uredia d) Telia

58. The disease damping off seedlings during nursery stage is caused by the pathogen

- a) *Physoderma maydis* b) *Pythium aphanidermatum*
c) *Pythium debaryanum* d) Both b and c

59. The optimum temperature for the attack of foot rot of papaya (*Pythium aphanidermatum*) is

- a) 22 °C b) 28 °C c) 32 °C d) 36 °C

60. The effective control of late blight of potato is possible by use of

- a) Sanitation measures b) Spray of metalaxyl c) Bordeaux mixture d) All of these

61. The bacterial colony is known as

- a) Spore b) Mycelium c) Ooze d) Hypha

62. The gummosis disease of citrus which is caused by *Phytophthora palmivora* is identified by observing

- a) Death of shoot tip b) Root knot c) Chlorosis d) Oozing of gum

63. *Albugo candida* causes white blisters or white rust of crucifers is a /an

- a) Obligate parasite b) Obligate saprophyte
c) Facultative parasite d) Facultative saprophyte

64. *Albugo candida* produces

- a) Basidiospores b) Ascospores c) Zoospores d) Oospores

65. The green ear or downy mildew disease of pearl millet was first time reported in India by

- a) K.C.Mehta b) E.J.Butler c) B.B.Mundkur d) R.Prasad

66. The downy mildew disease of pearl millet is primarily a

- a) Seed borne b) Air borne c) Soil borne d) Water borne

67. Stem galls of coriander (*Coriandrum sativum*) is caused by

- a) *Protomyces macrosporus* b) *Plasmopora viticola*
c) *Peronospora pisi* d) None of these

68. The symptoms of powdery mildew of pea (caused by *Erysiphe polygoni*) first appears on

- a) Stem b) Roots c) Leaves d) Flowers

69. The powdery mildew of wheat is associated with fungi
 a) *Erysiphe graminis sp tritici* b) *E graminis sp hordei*
 c) *Erysiphe polygoni* d) None of these
70. The disease caused by *Leptosphaeria sacchari* in sugarcane is
 a) Red rot b) Black rot c) Ring spot d) None of these
71. The disease ergot of rye produces sclerotia is caused by
 a) *Claviceps purpurea* b) *C.fusiformis* c) *C.sativa* d) None of these
72. Select the disease in which small droplets of pinks or light honey coloured fluid (The honey dew stage) exudes from the spikelets
 a) Citrus canker b) Green ear disease of bajra
 c) Ergot of bajra d) Bacterial blight of rice
73. The management of ergot of bajra may be possible by adopting of
 a) Long crop rotations b) Keeping seed in 20 % salt solution
 c) Spray of oxychloride + Zineb d) All of these
74. The most striking symptom of false smut of rice (*Claviceps oryzae-sativae*) is/are
 a) Transformation of individual kernels into large, velvety, green balls
 b) Sometimes the size of kernel are more than twice the diameter of normal grain
 c) The colour of kernels finally changes to greenish black
 d) All of these
75. Covered smut of barley (caused by *Ustilago hordei*) is/are
 a) Internally seed borne b) Externally seed borne
 c) Both a and b d) Not clearly defined
76. Which fungicide gives effective control of Covered smut of barley?
 a) Vitavax b) Ceresan c) Agrosan 5W d) Sulphur dust
77. Loose smut of barley is/are
 a) Internally seed borne b) Externally seed borne
 c) Both a and b d) Not clearly defined
78. The plants produce a whip like black shoot, often very long and much curved on itself in smut of sugarcane is caused by pathogen
 a) *Ustilago nuda* b) *Ustilago tritici* c) *Ustilago scitaminea* d) *Ustilago hordei*
79. The false smut of sugarcane can be controlled by spraying
 a) Avoid the practice of rationing b) Disinfection of setts before planting
 c) Removal of smutted whips from the field d) All of these
80. Infection of smut of maize (*Ustilago maydis*) occurs during
 a) Vegetative stage b) Reproductive stage c) After flowering d) Before sowing

81. Smut of pearl millet (Caused by *Tolyposporium penicillariae*) is a
a) Internally seed borne b) Externally seed borne c) Soil borne d) All of these
82. The common bunt, stinking smut or hill bunt of wheat is caused by the pathogen
a) *Tilletia tritici* b) *Tilletia foetida* c) Both a and b d) *Neovossia indica*
83. Karnal bunt of wheat first reported in Karnal by Mitra in
a) 1929 b) 1931 c) 1941 d) 1951
84. The Karnal bunt of wheat is caused by
a) *Neovossia indica* b) *Tilletia hordei* c) *Urocystis tritici* d) *Ustilago tritici*
85. The causal organism *Neovossia indica* produces
a) Urediospores b) Zoospores c) Oospores d) Teliospores
86. The causal organism of bunt of rice is
a) *Urocystis tritici* b) *Tilletia foetida* c) Aeciospores d) Basidiospores
87. The effective control of flag smut of wheat (*Urocystis tritici*) can be done by adopting of
a) Use of resistant varieties b) Seed treatment c) Crop rotation d) All of these
88. Which type of spores of *Puccinia graminis tritici* infect the barberry plant
a) Teliospores b) Urediospores c) Aeciospores d) Basidiospores
89. In rust cycle the cereal host is infected by
a) Urediospores b) Aeciospores c) Teliospores d) Basidiospores
90. The yellow rust of wheat is caused by
a) *Puccinia striiformis* b) *Puccinia recondita*
c) *Puccinia graminis tritici* d) *Puccinia hordei*
91. In India the leaf rust of coffee was first time recorded in
a) 1856 b) 1870 c) 1880 d) 1943
92. Rust of linseed and flax (autoecious rust) is caused by
a) *Puccinia recondita* b) *Puccinia striiformis*
c) *Puccinia graminis tritici* d) *Melampsora lini*
93. Cytoplasmic inheritance presumably occurs in all organisms except
a) Viruses b) Viroids c) Both d) None
94. Early blight of potato produces
a) Conidia b) Telia c) Uredia d) Aecia
95. For the effective control of early blight of potato, which fungicide is most suitable?
a) Zineb b) Dithane M-45 c) Blitox-50 d) Difolatan
96. Early blight of potato is
a) Soil borne disease b) Air borne c) Seed borne d) All of the above
97. Leaf spot or tikka disease of groundnut is/are caused by

- a) *Cercospora arachidicola* b) *Cercospora personatum*
c) Both a and b d) *Drechslera graminea*

98. Brown leaf spot disease of rice is caused by

- a) *Drechslera oryzae* b) *Cercospora arachidicola*
c) *Xanthomonas oryzae* d) *Pyricularia oryzae*

99. The fungus of *Drechslera oryzae* produces toxins which are highly toxic to rice seedlings, name of such toxin is

- a) ABA b) Trimethyl amine c) Isobutylene d) Cochliobolus

100. The pathogen of rice blast or rotten neck is

- a) *Ustilago tritici* b) *Pyricularia oryzae* c) *Alternaria alternata* d) None of these

MODEL PAPER-10

1. Tea rust is caused by
 - a) MLO
 - b) Virus
 - c) Bacteria
 - d) Algae
2. The *Colletotrichum falcatum* produces
 - a) Zygosporangia
 - b) Oospores
 - c) Ascospores
 - d) Conidiospores
3. Wilt of pigeon pea is caused by
 - a) *Fusarium udum*
 - b) *Gibberella indica*
 - c) *Rhizopus nigricans*
 - d) *Aspergillus flavus*
4. For the effective control of wilt, pigeon pea should be intercropped with
 - a) Maize
 - b) Pearl millet
 - c) Sorghum
 - d) Mung
5. The most important symptom of wilt of cotton (caused by *Fusarium oxysporum fsp vasinfectum*) is
 - a) Necrosis
 - b) Yellowing of tissues
 - c) Discolouration of tissues and plugging of vessels by hyphae
 - d) All of these
6. Wilt disease of sugarcane was first time reported in India from
 - a) Punjab
 - b) Tamil Nadu
 - c) Bihar
 - d) Uttar Pradesh
7. The pathogen responsible for charcoal rot of soybean is
 - a) *Ascochyta rabiei*
 - b) *Macrophomina phaseolina*
 - c) *Rhizoctonia solani*
 - d) *Penicillium chrysogenum*
8. The incidence of black scurf of potato is more in
 - a) Sandy soil
 - b) Clay soil
 - c) Alluvial soil
 - d) Loam soil
9. The attack of sheath blight of rice (caused by *Rhizoctonia solani*) is more during
 - a) Germination
 - b) Active tillering stage
 - c) Flowering
 - d) All of these
10. Resistance to broad range of Powdery mildew is offered by
 - a) RPW8
 - b) cf-8
 - c) Hm-1
 - d) Xa21
11. Differential resistance is also called as
 - a) Horizontal resistance
 - b) Vertical resistance
 - c) Apparent resistance
 - d) Field resistance
12. Suppressors of RNAi silencing
 - a) HC-component of Poty viruses
 - b) p²⁵ protein of potato virus X
 - c) Both a and b
13. RISC is formed by
 - a) ssRNA+ Proteins
 - b) Proteins
 - c) ssRNA
 - d) dsRNA
14. Viroids are discovered by
 - a) Diener
 - b) Prusiner
 - c) Doi
 - d) Kassanis
15. Pathogenicity of bacteria is controlled by
 - a) Type-III
 - b) Type-II
 - c) Type-I
 - d) Type-IV

16. Mycoplasma cell membranes have how many layers
a) One layer b) Two layers c) Three layers d) Four layers
17. Leaf puckering as a result of different growth rates in adjoining tissue is
a) Savoying b) Hyperplasia c) Sarcody d) Intumesence
18. The uredospores of *Puccinia graminis* are disseminated by
a) Wind b) Animals c) Insect d) Birds
19. G + C content of prokaryotes is
a) 20 % b) 30 % c) 50% d) 70%
20. Bacterial cell division mainly by
a) Binary division b) Fragment c) Budding d) None of these
21. Shape of MLO is
a) Rigid b) Cuboid c) Circular d) Polymorphic
22. Sensitivity of ELISA
a) 1-10 ng/ml b) 10-20 ng/ml c) 0.2-1 ng/ml d) 5-20 ng/ml
23. Teichoic acid found in
a) Fungi b) Gram + ve bacteria c) Gram - ve bacteria d) Protozoa
24. Father of Indian bacteriology
a) Louis Pasteur b) Robert Koch c) Doi d) E.F.Smith
25. Plant Pathology written by
a) R.S.Singh b) Agrios c) V.S.Singh d) A.P.Sinha
26. Rickettsia disease is caused by
a) Gram –ve fastidious bacteria b) Gram +ve fastidious bacteria
c) *Clavibacter xyli* d) Both b and c
27. In north India and central India, the black rust inoculum cause from
a) South b) Hilly area c) From USA d) From Netherlands
28. Teliospore of rust has germ pores in number
a) 1 b) 2 c) 3 d) 4
29. Rice blast pathogen perfect stage is
a) *Pyricularia oryzae* b) *Magnaporthe grisea*
c) *Helminthosporium oryzae* d) *Rhizoctonia solani*
30. Smut of maize is caused by
a) *Ustilago tritici* b) *Ustilago maydis* c) *Ustilago hordei* d) None of these
31. Virus capsid is made up of
a) Protein b) Carbohydrate c) Lipid d) Nucleic acid
32. Phyllody disease of sesamum spread by

- a) Leaf hopper b) Jassid c) Aphid d) Whitefly
33. Fungi imperfecti includes in
a) Deuteromycotina b) Basidiomycotina c) Ascomycotina d) Oomycotina
34. Mycoviruses contain
a) ds RNA b) ds DNA c) ss RNA d) ss DNA
35. Hrp genes are discovered by
a) Albersheim b) Lindgren & Peet c) Morris d) Staskawicz
36. Microorganisms in Diseased Plants is written by
a) R.S.Singh b) C.D.Mayee c) S. Nagarajan d) A.Mahadevan
37. Who recognized hypersensitive response in bacteria
a) Stakmann b) Z Klement c) H.M.Ward d) Biffen
38. Downy mildew of pea caused by
a) *Perenospora pisi* b) *Albugo candida* c) *Erysiphe polygoni* d) None of these
39. Father of Indian Mycology
a) E.J.Butler b) K.C.Mehta c) Mundkur d) R.S.Singh
40. Renowned scientist Norman E. Borlaug belongs to
a) Agronomy b) Genetics c) Entomology d) Plant Pathology
41. In 2005 which pathological scientist got Borlaug award
a) Rattan lal b) V.L.Chopra c) C.D.Mayee d) S.Nagarajan
42. Which of the following bacteria generally used in genetic engineering for transfer of character from one organism to another
a) *Bacillus thuringiensis* b) *Pseudomonas syringe*
c) *Rhizobium meliloti* d) *Agrobacterium tumefaciens*
43. Micrografting is used to produce plants free from
a) Virus b) RLO's c) MLO's d) Bacteria
44. Black heart is a physiological disorder of
a) Tomato b) Chilli c) Potato d) Cabbage
45. Which of the following is not correctly matched?
a) Mustard- white rust b) Paddy-Brown rust
c) Wheat-Red rust d) Groundnut – Tikka
46. Tungro disease of rice is spread by
a) *Nephotettix virescense* b) *Sogatella fucifera*
c) *Nilaparvatha leugens* d) *Thrips tabaci*

47. The term hypersensitive response is given by
 a) Stakmann b) Erickson c) H.M.Ward d) W.A.Orton
48. Soil microorganism are most active at
 a) 18-20 °C b) 26-28°C c) 30-30°C d) 34-36°C
49. VAM is
 a) Bacteria b) Fungi c) Virus d) Algae
50. Which of the following is not a disease of apple?
 a) Bird eye b) Powdery mildew c) Downy mildew d) Bunchy top
51. Buck eye rot is disease of which crop
 a) Water chestnut b) Sweet potato c) Pods of garden pea d) Tomato fruits
52. The major storage fungi that affects the food grain is
 a) Rhizobium b) Mucor c) Cercospora d) Aspergillus
53. Yellow leaf mosaic of bhendi crop spreads by
 a) Jassids b) Borers c) Jassid and borers d) Whiteflies
54. Polymorphism in fungi is first noticed by
 a) Anton de Bary b) Tulsane brothers c) E.M.Fries d) B. Prevost
55. Which of the disease (s) induce floral abnormalities?
 a) Downy mildew of mustard b) Green ear of bajra
 c) White rust of crucifers d) Both (b) and (c)
56. Which one of the following microbial agents is being commercially exploited as biocontrol agent?
 a) *Bacillus subtilis* b) *Penicillium notatum*
 c) *Sclerotium rolfsi* d) *Trichoderma viride*
57. Panama disease of banana is prevented by
 a) Spraying zinc carrier b) Spraying copper fungicide
 c) Application of lime to the soil d) Providing adequate irrigation
58. Which one the following fungicides is not systemic in nature
 a) Vitavax b) Thiram c) Benlate d) Topsin
59. Which one of the following is/are entomopathogenic fungi?
 a) *Beauveria bassiana* b) *Metarrhizium anisopliae*
 c) *Trichoderma harzianum* d) Both (a) and (b)
60. Which penicillium species used in Cheese making
 a) *Penicillium notatum* b) *Penicillium roqueforti*
 c) *Penicillium diversicaudatum* d) *Penicillium crysogenum*

61. CARNA-5

- a) Satellite RNA b) Satellite Virus c) Virus d) Bacteria

62. Bacterial diseases are controlled by use of chemicals

- a) Kelthane b) fungicide c) Antibiotics d) Viricides

63. Application of potash increases

- a) Resistance to water logging b) Frost resistance in plants
c) Disease resistance in plants d) None of these

64. Decomposition of organic matter in submerged soil is carried out by

- a) Bacteria b) Actinomycetes c) Fungi d) Earthworm

65. The sedimentation coefficient for most of viruses is between

- a) 50-200S b) 100-200S c) 200-300S d) 25-50S

66. Most of viruses have buoyant density between

- a) 1.2 and 1.6 g/cm³ b) 1.4 and 1.8 g/cm³ c) 1.0 and 1.2 g/cm³ d) 1.8 and 2 g/cm³

67. Phenols present in the red scales of onion

- a) Catechol b) Procatechoic acid c) Saponin d) a&b

68. Alteration of generation is seen in

- a) Alternaria b) Allomyces c) Neovassia d) Tilletia

69. Local and systemic infection is seen in

- a) White rust of crucifers b) Late blight of potato c) Coffee rust d) Rice blast

70. Viruses contain

- a) RNA b) DNA c) Both RNA and DNA d) Either RNA or DNA, never both

71. The viruses which are usually helped or accompanied by smaller spherical particles of another serologically unrelated virus is known as

- a) Satellite virus b) Gemini viruses c) Viroid d) Capsid

72. Select the correct pair from the following

- a) Hypotrophy- decrease in size b) Hypertrophy- increase in size
c) Hyperplasia- increase in number d) All of these

73. In plants buckling, puckering and blistering symptoms are produced by

- a) Bacteria b) Fungi c) Viruses d) Mycoplasma

74. The fungi which transmit plant viruses belong to class

- a) Basidiomycetes b) Oomycetes c) Zygomycetes d) Plasmodiophoromycetes

75. For quick and accurate detection of viruses can be done by

- a) ELISA b) HADAS c) IEM d) All of these

76. Potato viruses are spread by
 a) Aphids b) Jassids c) Nematodes d) Tubermoth
77. Most of the plant viruses transmitted by
 a) Whiteflies b) Plant hopper c) Leaf hopper d) Aphids
78. Bunchy top of papaya (caused by MLO) is spread by
 a) Nematodes b) Fungi c) Whitefly d) Leaf hoppers
79. Yellow mosaic of legumes was first reported in India from
 a) Shimla b) Solan c) Delhi d) Kanpur
980. Potato spindle tuber disease is transmitted by
 a) Mechanically b) biologically c) Water d) All of these
81. Select the correct pair from the following matched items:
 a) Holo stem parasite- *Cuscuta reflexa* b) Stem semi parasite
 c) Holo root parasite – Orobanche d) All of these
82. Suicidal germination takes place in
 a) Dodder b) Striga c) Loranthus d) *Dendrophthoe falcata*
83. Chitin is composed of
 a) Chitin b) Glucose c) Cerasan d) N-acetyl glucosamine
84. Damping off and leaf blights are very effectively checked by
 a) Bordeaux mixture b) Burgundy mixture c) Thiram d) Copper oxychloride
85. The organo-mercurials fungicides used for dry seed treatment usually contain mercury
 a) 0.5% b) 1.0 % c) 2.0 % d) 4.0%
86. Dinocap (methyl heptyl dinitrophenyl crotonate) is sold in market as
 a) Bravo b) Dexon c) Botron d) Karathane
87. Von Schleming and Kulka first time demonstrated the systemic activity of fungicides in
 a) 1956 b) 1966 c) 1972 d) 1976
88. Select the fungicides:
 a) Pyrimidines b) Triazoles c) Metalaxyl d) All of these
89. Infective spores in rust life cycle are
 a) Uredospores and Aeciospores b) Uredospores and Teliospores
 c) Teliospores and Basidiospores d) Pycniospores and Uredospores
90. Tick out the pair which is wrongly matched
 a) Oxycarboxin- Plantvax b) Carboxin- Benlate
 c) MBC-Bavistin d) Benomyl- Benlate
91. Most commonly used transposon in molecular plant pathology is
 a) Bn6 b) Hm1 c) Tn5 d) T4

92. Black or Silvery scurf of potato is caused by
a) *Sclerotium rolfsii* b) *Rhizoctonia solani*
c) *Ralstonia solanacearum* d) *Phytophthora infestans*
93. Forecasting system developed for apple scab on the basis of
a) Amount of inoculum b) Leaf wetness period and temperature
c) RH d) Temperature
94. Largest know viroid
a) Citrus Exocortosis viroid b) Potato spindle tuber viroid
c) Coconut cadang cadang viroid d) Apple scar viroid
95. The pathogenicity of a viroid is determined by which region
a) Pathogenicity region & Terminal region b) Terminal region & Variable region
c) central conserved region & Pathogenicity region d) Variable region
96. The science which deals with cause of the plant diseases and nature of the causal agent
a) Fertilization b) Etiology c) Aetiology d) Both (b) and (c)
97. The sexual, thick walled and resting spores of the rust fungi is known as
a) Basidiospores b) Urediospores c) Teliospores d) Aeciospores
98. Who discovered the downy mildew for the first time in India?
a) E.J.Butler b) J.F.Dastur c) B.B.Mundkur d) K.R.Kirtikar
99. Which one of the following is a single cell fungi?
a) Yeast b) Aspergillus c) Penicillium d) Alternaria
100. What is the source of Agar Agar?
a) Bacteria b) Fungi c) Mycoplasma d) Algae

Match the following

1. Hm- 1	A. Resistance gene of tomato
2. Cf-9	B. Resistance gene of rice
3. N	C. Resistance gene of flax
4. L 6	D. Resistance gene of maize
5. Xa 21	E. Resistance gene of tobacco
1-D, 2-A, 3-E, 4-C, 5-B	
1. Toxic mushroom	A. <i>Agaricus bisporus</i>
2. Oyster mushroom	B. <i>Amanita phalloides</i>
3. White button mushroom	C. <i>Lentinus edodes</i>
4. Shitake mushroom	D. <i>Volvariella diplasia</i>
5. Paddy straw mushroom	E. <i>Pleurotus sojar kaju</i>
1-D, 2-E, 3-A, 4-C, 5-B	
1. Pisatin	A. Cotton
2. Rishitin	B. Bean
3. Phaseollin	C. Rice
4. Mobilactene A & B	D. Potato
5. Gossypol	E. Pea
1-E, 2-D, 3-B, 4-C, 5-A	
1. Etiolation	A. Over watering condition
2. Black heart	B. White or colored tissue become green
3. Virescent	C. High temperature
4. Edema	D. Reduced oxygen condition
5. Sun scald	E. Lack of sufficient light
1-E, 2-D, 3-B, 4-A, 5-C	

1. <i>Pseudomonas fluorescence</i>	A. BINAB
2. <i>Trichoderma harzianum</i>	B. Norbac 84- C
3. <i>Bacillus subtilis</i>	C. Daggor- G
4. <i>Gliocladium virens</i>	D. Kodiak
5. <i>Agrobacterium radiobacter</i>	E. GlioGard
1-C, 2-A, 3-D, 4-E, 5-B	
1. Fusiform rust	A. <i>Cronartium ribicola</i>
2. Coffee rust	B. <i>Phragmidium</i>
3. Rose rust	C. <i>Gymnosporangium juniperi virginianae</i>
4. Cedar-apple rust	D. <i>Cronartium quercuum fsp. fusiforme</i>
5. White pine blister rust	E. <i>Hemileia vastatrix</i>
1-D, 2-E, 3-B, 4-C, 5-A	
1. <i>Erwinia amylovora</i>	A. <i>Polymyxa graminis</i>
2. <i>Erwinia tracheiphila</i>	B. Elm bark beetle
3. <i>Ceratocystis ulmi</i>	C. <i>Synchytrium endobioticum</i>
4. Wheat mosaic virus	D. Honey bee
5. Potato virus X	E. Cucumber beetles
1-D, 2-E, 3-B, 4-A, 5-C	
1. Class I	A. Cf-9
2. Class II	B. N
3. Class III	C. Pto
4. Class IV	D. Hm
5. Class V	E. Xa 21
1-D, 2-C, 3-E, 4-N, 5-A	

1. Aminoglycosides	A. Penicillins
2. Macrolids	B. Nystatin
3. β – lactams	C. Bacitracin
4. Polyenes	D. Erythromycin
5. Polypeptides	E. Streptomycin
1-E, 2-D, 3-A, 4-B, 5-C	
1. EPIDEM	A. Mycosphaerella
2. EPIVEN	B. <i>Puccinia graminis fsp. Striiformis</i>
3. EPIDEMIC	C. <i>Venturia inaequalis</i>
4. EPICORN	D. <i>Alternaria solani</i>
5. MYCOS	E. <i>Helminthosporium maydis</i>
1-D, 2-C, 3-B, 4-E, 5-A	
1. COLLEGO	A. <i>Alternaria cassia</i>
2. BIOMAL	B. <i>Phytophthora palmivora</i>
3. VELGO	C. <i>Colletotrichum coccodes</i>
4. CASST	D. <i>Colletotrichum gloeosporioides fsp. aeshynomene</i>
5. DEVINE	E. <i>Colletotrichum gloeosporioides fsp. malvae</i>
1-D, 2-E, 3-C, 4-A, 5-B	
1. Cellulose	A. <i>Agrobacterium tumefaciens</i>
2. Glucan	B. <i>Pseudomonas aeruginosa</i>
3. Levan	C. <i>Bacillus anthracis</i>
4. Polyglutamic acid	D. <i>Pseudomonas</i>
5. Polyuronides	E. <i>Acetobacter xylinum</i>
1-E, 2-A, 3-B, 4-C, 5-B	

1. P.A.Micheli	A. Synopsios Methodica Fungorum
2. C.H.Persoon	B. Systema Mycologicum
3.C.Linnaeus	C. Pinax Theatri Botanici
4.E.M.Fries	D. Species Plantarum
5.Gaspard Bauhin	E. Nova Plantarum Genera
1-E, 2-A, 3-D, 4-B, 5-C	
1. Polymixin –G	A. Inhibit 30 S ribosome functions
2. Chloramphenicol	B. Inhibit 50 S ribosome functions
3. Penicillin	C. Inhibit translation step of ribosome function
4. Erythromycin	D. Inhibit synthesis of murein
5. Streptomycin	E. Destroys cytoplasmic membrane
1-E, 2-C, 3-D, 4-B, 5-A	
1. Phala blight of sugarcane	A. Boron
2. Whip-tail of cauliflower	B. Molybdenum
3. Little leaf of apple	C. Calcium
4. Blossom end rot of fruits	D. Manganese
5. Heart rot of sugar beets	E. Zinc
1-D, 2-B, 3-E, 4-C, 5-A	
1. First gene cloning	A. 1952
2. Monoclonal antibodies	B. 1968
3. H.G.Khorana	C. 1969
4. S.Waksman	D. 1973
5. Modern molecular biology	E. 1981
1-D, 2-E, 3-B, 4-A, 5-C	

1. Father of Plant Pathology	A. M.W.Beijerinck
2. Father of Bacteriology	B. N.A.Cobb
3. Father of Virology	C. P.A.Micheli
4. Father of Mycology	D. Anton de Bary
5. Father of Nematology	E. Antony von Leeuwenhock
1-D, 2-E, 3-A, 4-C, 5-B	
1. Bacteria	A. Prusiner
2. Virus	B. F.d'Herelle & F.W.Twort
3. Viriod	C. Antony von Leeuwenhock
4. Prions	D. T.O.Diener
5. Bacteriophage	E. M.W.Beijerinck
1-C, 2-E, 3-D, 4-A, 5-B	
1. <i>Rhizoctonia solani</i>	A. <i>Mycosphaerella rabiei</i>
2. <i>Pyricularia oryzae</i>	B. <i>Sclerotinia frankliana</i>
3. <i>Ascochyta rabiei</i>	C. <i>Cochliobolus miyabeanus</i>
4. <i>Helminthosporium oryzae</i>	D. <i>Thanetophorus cucumeris</i>
5. <i>Botrytis cinera</i>	E. <i>Magnaporthe oryzae</i>
1-D, 2-E, 3-A, 4-C, 5-B	
1. Gene for gene hypothesis	A. Hansen & Smith
2. Heterokaryosis	B. J.E.Vanderplank
3. Parasexual recombination	C. Grente and Sauret
4. Hypovirulence phenomena	D. H.H.Flor
5. Vertifolia effect	E. Pontecarvo
1-D, 2-A, 3-E, 4-C, 5-B	

1. Bacteriophage	A. 1968
2. Bdellovibrio	B. 1962
3. Satellite virus	C. 1982
4. Mycovirus	D. 1915
5. Virusoid	E. 1962
1-D, 2-E, 3-A, 4-, 5-B	
1. An outline history of Plant Pathology	A. B.B.Mundkur
2. Fungi and disease in plants	B. G.C.Ainsworth
3. Introduction to the history of Plant Pathology	C. E.J.Butler
4. Fungi and plant diseases	D. A.P.Watson and Lise Wilkinson
5. An Introduction to the history of virology	E. H.H.Whetzel
1-E, 2-C, 3-B, 4-A, 5-D	
1. Sirenin	A. Achyla ambisexualis
2. Antheidiol	B. Gibberella zeae
3. Trisporic acid	C. Saccharomyces cerevisiae
4. Zearalenone	D. Mucor mucedo
5. Yeast - α factor	E. Allomyces
1-E, 2-A, 3-D, 4-B, 5-C	
1. Buller phenomenon	A. Adolf Mayer
2. Bacteriophage	B. Moore and Alear
3. Dolipore septa	C. E.C.Stakman
4. Hypersensitivity	D. Quintanilha
5. Mosaic	E. F.d'.Herelle
1-D, 2-E, 3-B, 4-C, 5-A	

1. Little leaf of brinjal	<i>A. Pentalonía nigranervosa</i>
2. Citrus tristeza	<i>B. Aceria cajani</i>
3. Banana bunchy top	<i>C. Toxoptera citricidus</i>
4. Tungro disease of rice	<i>D. Hishimonas phycitis</i>
5. Pigeonpea sterility	<i>E. Nephotettix virescens</i>
1-D, 2-C, 3-A, 4-E, 5-B	
1. White rot fungi	A. Chaetomium
2. Brown rot fungi	B. Ceratocystis
3. Soft rot fungi	C. Sclerotinia
4. Blue stain fungi	D. Piptoporus
5. Snow mould fungi	E. Coriolus
1-E, 2-D, 3-A, 4-B, 5-C	
1. Bordeaux mixture	A. 1887
2. Burgundy mixture	B. 1921
3. Chestnut compound	C. 1966
4. Captan	D. 1882
5. Carboxin	E. 1951
1-D, 2-A, 3-B, 4-E, 5-C	
1. Chemostat	A. Enables one to draw clear cut and simple but exact sketch of objects seen under microscope
2. Centrifuge	B. Used for inoculation/isolation
3. Camera lucida	C. used in virus isolation
4. Calorimeter	D. Used for continuous culture of microorganisms
5. Laminar flow	E. Used for counting population of bacteria
1-D, 2-C, 3-A, 4-E, 5-B	

1. Potassium dichromate	A. Preservative solution
2. Agar-agar	B. Mounting medium
3. Formal acetic alcohol	C. Solidifying solution
4. Lactophenol	D. Cleaning solution
5. Glacial acetic acid	E. Fixative
1-D, 2-C, 3-E, 4-B, 5-A	
1. Hm-1	A. The first phytoalexin to be purified
2. CGA 245704	B. The first antibiotic
3. Pisatin	C. The first broad spectrum antibiotic
4. Streptomycin	D. The first resistance gene
5. Penicillin	E. The first plant defense activator compound
1-D, 2-E, 3-A, 4-B, 5-B	
1. Jokers in the microbial pack	A. Nematodes
2. Waste basket assemblage of organisms	B. Discomycetes
3. Eelworm	C. Mucorales
4. The sugar fungi	D. Dueteromycotina fungi
5. The cup fungi	E. Mycoplasma
1-E, 2-D, 3-A, 4-C, 5-B	
1. Green ear disease of bajra	A. <i>Phytophthora parasitica</i>
2. Sugary disease of sorghum	B. <i>Ceratostomella paradoxa</i>
3. Pineapple disease of sugarcane	C. <i>Ralstonia solanacearum</i>
4. Moko disease of banana	D. <i>Sclerospora graminicola</i>
5. Black shank of tobacco	E. <i>Sphacelia sorghi</i>
1-D, 2-E, 3-B, 4-C, 5-B	

1. Fungi reproducing only by conidia, sexual stage is lacking	A. Class-Coelomycetes
2. Presence of clamp connection	B. Class-Hemiascomycetes
3. Fungi with naked asci, no ascocarp present	C. Class-Discomycetes
4. Conidia are born in a pycnidium or in an acervulus	D. Subdiv. Basidiomycotina
5. Asci in an apothecium	E. Subdiv. Deuteromycotina
1-E, 2-D, 3-B, 4-A, 5-C	
1. Mycelium sterile, conidia not formed	A. Subdiv. Mastigomycotina
2. Conidiophores are bundled together, forming a synnema, no sexual spores	B. Order-Endomycetales
3. The yeast (<i>Saccharomyces</i>)	C. Order-Hyphomycetales
4. Filamentous fungi	D. Order-Stilbellales
5. Free living amoeba or pseudoplasmodium	E. Div. -Myxomycotina
1-C, 2-D, 3-B, 4-A, 5-D	
1. A brush like conidiophores with conidia produced from phalides	A. Genus- Hemileia
2. Cleistothecium with mycelium like appendages	B. Genus – Albugo
3. Planospores released from a spherical vesicle	C. Genus –Aspergillus
4. Teliospores walls colorless, uredospores reniform basidia slender, symmetrical	D. Genus – Pythium
5. Sporangia borne in basipetal chain subepidermally forming white blisters on plant	E. Genus – Erysiphe
1-C, 2-E, 3-D, 4-A, 5-B	
1. <i>Claviceps purpurea</i>	A. Entomogenous fungi
2. <i>Glomus</i> spp.	B. Industrial used fungi
3. <i>Ashbya gossypii</i>	C. Ergotism
4. <i>Aspergillus niger</i>	D. Mycorrhizal fungi
5. <i>Beauveria bassiana</i>	E. Vitamin B-complex
1-C, 2-D, 3-E, 4-B, 5-A	

1. P.M.A.Millardet	A. Contagious vivum fluidum
2. Louis Pasteur	B. Fire blight of apple
3. T.J.Burill	C. Theory of fermentation
4. M.W.Beijerinck	D. Mycoplasma like organisms
5. Doi <i>et al</i>	E. Bordeaux mixture
1-E, 2-C, 3-B, 4-A, 5-D	
1. Completely closed ascocarp	A. Peziza
2. A layer of ascocarp/basidiocarp consist of asci/basidia	B. Hemiascomycetes
3. Ascus and ascogenous hyphae absent thallus yeast like	C. Hyphomycetes
4. Epigeal, sessile/subsessile open ascocarp	D. Cleistothecium
5. Moniliaceae	E. Hymenium
1-D, 2-E, 3-B, 4-A, 5-C	
1. Stinking smut of wheat	A. <i>Sphacelotheca reiliana</i>
2. Covered smut of barley	B. <i>Tolyposporium penicillariae</i>
3. Long smut of sorghum	C. <i>Tilletia tritici</i>
4. Smut of pearl millet	D. <i>Tolyposporium ehrenbergii</i>
5. Head smut of sorghum	E. <i>Ustilago hordei</i>
1-C, 2-E, 3- D, 4-B, 5-A	
1. Bunt of rice	A. <i>Sphacelotheca sorghi</i>
2. Citrus exocartis	B. Orabanche
3. Loose smut of sorghum	C. Viroid
4. Broom rape	D. <i>Tilletia barclayana</i>
5. Grain smut of sorgum	E. <i>Sphacelotheca cruenta</i>
1-D, 2-C, 3-E, 4-B, 5-A	

1. Penicillium	A. Phyllactinia
2. Aspergillus	B. Erysiphe
3. Oidium	C. Eurotium
4. Oidiopsis	D. Talaromyces
5. Ovulariopsis	E. Leveillula
1-D, 2-C, 3-B, 4-E, 5-A	
1. Tab toxin	A. <i>Alternaria tenuis</i>
2. Tentoxin	B. Host specific toxin
3. Rhizopus	C. Fumaric acid
4. Victorin	D. Non host specific toxin
5. AM toxin	E. <i>Alternaria alternate</i>
1-D, 2-A, 3-C, 4-B, 5-E	
1. PC toxin	A. <i>Pestalotia theae</i>
2. Grey blight of tea	B. Classification of resistance
3. Red rust of tea	C. <i>Cephaleuros parasiticus</i>
4. Take all disease of wheat	D. <i>Periconia circinata</i>
5. Vanderplank	E. <i>Gaemanomyces graminis tritici</i>
1-D, 2-A, 3-C, 4-E, 5-B	
1. Citrus stunt	A. Magnaparthe
2. Cercospora	B. Mycosphaerella
3. Pyricularia	C. Thanetophorus
4. Bipolaris	D. Helical mycoplasma
5. Macrophoma	E. Cochliobolus
1-D, 2-B, 3-A, 4-E, 5-C	

1. Citrus stubborn	A. Epichloe
2. Cucumber wilt	B. Spiroplasma
3. Chalara	C. Hypocrea
4. Acremonium	D. Ceratocystis
5. Trichoderma	E. Erwinia tracheiphila
1-B, 2-E, 3-D, 4-A, 5-C	
1. Verticillium	A. 1st plant parasitic bacteria
2. Fusarium	B. Hypocrea
3. Red rot of sugar cane	C. Gibberella
4. Blister blight of tea	<i>D. Exobasidium vexans</i>
5. Erwinia amylovora	E. Glomerella
1-B, 2-C, 3-D, 4-C, 5-A	
1. Bajra rust	A. Zoospores
2. Planospores	B. Bringal
3. Dormant spores	C. Thalictum
4. Wheat orange rust	D. Pyrenochora
5. Drechslera	E. Chlamydospores
1-b, 2-A, 3-E, 4-C, 5-B	
1. Exserohilum	A. Botryosphaeria
2. Curvularia	B. Botryotinia
3. Ceratocystis	C. Cochliobolus
4. Shaeropsis	D. Setosphaera
5. Botrytis	E. Graphium
1-D, 2-C, 3-E, 4-A, 5-B	

1. Venturia	A. Ophiostoma
2. Phyllosticta	B. Guignardia
3. Alternaria	C. Lewia
4. Stemphyllium	D. Spilocea
5. Graphium	E. Pleospora
1-D, 2-B, 3-C, 4-E, 5-A	
1. Paecilomyces	A. Ophiostoma
2. Sporothrix	B. Byssochlamys
3. Sett rot of sugarcane	C. Teliospores
4. Repeating spores	D. <i>Ceratocystis paradoxa</i>
5. Sexual spores	E. Uredospores
1-B, 2-A, 3-D, 4-E, 5-C	
1. Groundnut early leaf spot	A. Monolinia
2. Rice blast	B. <i>Mycosphaerella berkeleyii</i>
3. Tomato bacterial leaf spot	C. Magnoportha grisea
4. Groundnut late leaf spot	D. Xanthomonas campestris pv.vesicatoria
5. Monilia	E. <i>Mycosphaerella arachidicola</i>
1-E, 2-C, 3-D, 4-B, 5-A	
1. Marsonina	A. Thanetophorus
2. Monilinia	B. Greeneria
3. Cylindrosporium	C. Diplocarpon
4. Melanconium	D. <i>Mycosphaerella</i>
5. Rhizoctonia	E. Neurospora
1-C, 2-E, 3-D, 4-B, 5-A	

1. Sclerotium	A. Plasmodiophorales
2. Elsinoe	B. Sphaceloma
3. Spongospora	C. Xylella fastidiosa
4. Pierce disease of grapes	D. Xylem inhabiting fastidious bacteria
5. Citrus variegated chlorosis	E. Aethalium
1-E, 2-B, 3-A, 4-C, 5-d	
1. Ratoon stunting of sugarcane	A. Viroid
2. Yellow vine of cucurbits	B. <i>Clavibacter xyli subsp xyli</i>
3. Citrus greening	C. Phloem inhabiting fastidious bacteria
4. Papaya bunchy top	D. <i>Candidatus liberobacter</i>
5. Chrysanthemum stunt	E. <i>Empoasca papayae</i> & <i>E.stevensi</i>
1-B, 2-C, 3-D, 4-E, 5-A	
1. <i>Aspergillus flavvus</i>	A. Yellow
2. <i>Aspergillus ochraceus</i>	B. Black
3. <i>Aspergillus niger</i>	C. Green
4. <i>Aspergillus tamari</i>	D. White
5. <i>Aspergillus candidus</i>	E. Brown
1-C, 2-A, 3-B, 4-E, 5-D	
1. V. Agnihothru	A. Rice diseases
2. Y. Padmanabhan	B. Viral diseases
3. V. Chenulu	C. Bacterial diseases
4. J.P. Verma	D. Maize diseases
5. M.M.Payak	E. Tea diseases
1-E, 2-A, 3-B, 4-C, 5-D	

ANSWERS

MODEL PAPER -1

1. b	11. b	21. c	31. a	41. a	51. a	61. b	71. a	81. a	91. d
2. b	12. a	22. a	32. a	42. a	52. a	62. b	72. c	82. a	92. b
3. c	13. c	23. a	33. a	43. b	53. b	63. b	73. a	83. a	93. b
4. c	14. c	24. c	34. b	44. b	54. b	64. a	74. b	84. b	94. a
5. a	15. b	25. b	35. b	45. a	55. a	65. b	75. a	85. a	95. d
6. a	16. b	26. a	36. c	46. a	56. a	66. a	76. a	86. c	96. b
7. b	17. a	27. c	37. a	47. b	57. a	67. a	77. c	87. c	97. a
8. a	18. b	28. a	38. a	48. a	58. a	68. c	78. a	88. b	98. c
9. c	19. c	29. b	39. a	49. a	59. a	69. b	79. a	89. c	99. b
10. a	20. b	30. b	40. b	50. a	60. a	70. d	80. b	90. b	100. a

MODEL PAPER -2

1. c	11. b	21. c	31. a	41. a	51. a	61. a	71. c	81. c	91. a
2. b	12. c	22. a	32. b	42. c	52. a	62. a	72. b	82. b	92. a
3. a	13. a	23. a	33. a	43. b	53. c	63. c	73. a	83. a	93. b
4. a	14. a	24. c	34. a	44. b	54. a	64. c	74. b	84. b	94. a
5. a	15. a	25. b	35. b	45. b	55. a	65. a	75. c	85. b	95. a
6. a	16. b	26. c	36. b	46. c	56. d	66. a	76. a	86. c	96. c
7. a	17. b	27. a	37. c	47. a	57. a	67. b	77. b	87. b	97. b
8. a	18. c	28. c	38. d	48. b	58. b	68. a	78. c	88. a	98. d
9. a	19. a	29. b	39. b	49. c	59. c	69. a	79. a	89. a	99. b
10. a	20. a	30. b	40. d	50. b	60. b	70. b	80. a	90. c	100. c

MODEL PAPER -3

1. b	11. a	21. c	31. a	41. c	51. a	61. a	71. a	81. a	91. a
2. b	12. d	22. b	32. c	42. c	52. a	62. d	72. c	82. b	92. d
3. c	13. b	23. a	33. d	43. d	53. a	63. a	73. d	83. d	93. b
4. d	14. a	24. c	34. b	44. a	54. b	64. a	74. a	84. a	94. c
5. b	15. c	25. c	35. b	45. d	55. c	65. c	75. c	85. b	95. a
6. c	16. c	26. b	36. b	46. d	56. c	66. b	76. b	86. b	96. b
7. c	17. d	27. c	37. b	47. a	57. d	67. a	77. b	87. a	97. b
8. b	18. a	28. b	38. b	48. d	58. d	68. d	78. a	88. d	98. b
9. c	19. a	29. a	39. b	49. c	59. d	69. a	79. b	89. a	99. b
10. c	20. a	30. a	40. a	50. d	60. a	70. d	80. b	90. a	100. b

MODEL PAPER -4

1. a	11. d	21. c	31. b	41. c	51. b	61. c	71. b	81. a	91. a
2. a	12. c	22. b	32. d	42. b	52. d	62. a	72. a	82. a	92. a
3. b	13. a	23. d	33. b	43. c	53. d	63. a	73. b	83. b	93. c
4. c	14. b	24. c	34. c	44. c	54. d	64. b	74. c	84. c	94. a
5. d	15. a	25. d	35. d	45. c	55. a	65. a	75. c	85. b	95. a
6. a	16. d	26. c	36. a	46. d	56. b	66. a	76. b	86. d	96. b
7. a	17. b	27. d	37. c	47. c	57. d	67. a	77. c	87. d	97. c
8. a	18. c	28. c	38. d	48. b	58. a	68. c	78. b	88. b	98. c
9. d	19. a	29. a	39. c	49. b	59. c	69. b	79. a	89. a	99. b
10. a	20. c	30. b	40. d	50. b	60. c	70. c	80. a	90. d	100. d

MODEL PAPER -5

1. c	11. a	21. c	31. a	41. c	51. b	61. c	71. b	81. a	91. d
2. a	12. a	22. a	32. b	42. b	52. a	62. a	72. b	82. c	92. d
3. c	13. b	23. a	33. a	43. b	53. c	63. b	73. a	83. a	93. a
4. a	14. a	24. a	34. b	44. b	54. b	64. b	74. a	84. b	94. a
5. a	15. a	25. b	35. a	45. a	55. b	65. c	75. a	85. d	95. a
6. a	16. a	26. a	36. c	46. b	56. a	66. b	76. b	86. a	96. d
7. c	17. b	27. a	37. c	47. b	57. c	67. a	77. a	87. a	97. a
8. b	18. a	28. c	38. a	48. c	58. a	68. d	78. a	88. c	98. a
9. a	19. c	29. b	39. b	49. b	59. c	69. a	79. a	89. b	99. a
10. a	20. a	30. a	40. c	50. b	60. a	70. a	80. d	90. d	100. a

MODEL PAPER -6

1. a	11. d	21. c	31. c	41. b	51. a	61. b	71. c	81. a	91. a
2. b	12. c	22. a	32. a	42. b	52. c	62. b	72. c	82. c	92. c
3. b	13. a	23. b	33. b	43. b	53. c	63. d	73. d	83. b	93. c
4. d	14. c	24. b	34. c	44. a	54. a	64. c	74. c	84. c	94. a
5. a	15. b	25. c	35. a	45. a	55. c	65. b	75. a	85. a	95. b
6. a	16. b	26. d	36. d	46. c	56. c	66. c	76. b	86. c	96. a
7. b	17. a	27. c	37. c	47. a	57. b	67. d	77. a	87. c	97. d
8. c	18. a	28. d	38. b	48. b	58. b	68. c	78. a	88. a	98. d
9. b	19. b	29. b	39. d	49. b	59. c	69. b	79. a	89. a	99. c
10. a	20. b	30. a	40. a	50. b	60. a	70. a	80. c	90. c	100. d

MODEL PAPER -7

1. b	11. a	21. c	31. b	41. c	51. a	61. a	71. b	81. d	91. b
2. a	12. b	22. c	32. a	42. d	52. a	62. a	72. a	82. a	92. c
3. b	13. d	23. b	33. c	43. c	53. b	63. c	73. b	83. a	93. b
4. a	14. a	24. a	34. a	44. c	54. b	64. c	74. a	84. b	94. b
5. a	15. a	25. a	35. c	45. a	55. b	65. c	75. a	85. c	95. d
6. d	16. b	26. c	36. d	46. a	56. b	66. b	76. c	86. b	96. a
7. c	17. a	27. c	37. a	47. b	57. d	67. c	77. a	87. a	97. a
8. a	18. a	28. a	38. b	48. b	58. c	68. a	78. b	88. c	98. a
9. a	19. b	29. a	39. c	49. c	59. b	69. b	79. c	89. d	99. c
10. b	20. d	30. c	40. d	50. b	60. a	70. a	80. a	90. c	100. a

MODEL PAPER -8

1. a	11. a	21. b	31. c	41. b	51. a	61. b	71. c	81. d	91. a
2. a	12. b	22. b	32. d	42. b	52. b	62. a	72. a	82. c	92. c
3. a	13. c	23. a	33. a	43. a	53. b	63. d	73. d	83. a	93. a
4. b	14. a	24. a	34. b	44. b	54. c	64. d	74. d	84. b	94. b
5. b	15. d	25. d	35. a	45. b	55. a	65. d	75. c	85. a	95. a
6. a	16. d	26. b	36. b	46. d	56. c	66. a	76. d	86. a	96. c
7. a	17. c	27. d	37. a	47. d	57. a	67. d	77. d	87. d	97. a
8. d	18. c	28. d	38. d	48. b	58. a	68. b	78. b	88. a	98. b
9. a	19. c	29. c	39. a	49. b	59. b	69. a	79. a	89. b	99. c
10. d	20. a	30. d	40. b	50. a	60. a	70. b	80. c	90. b	100. b

MODEL PAPER -9

1. a	11. d	21. d	31. b	41. c	51. b	61. c	71. a	81. c	91. b
2. a	12. a	22. c	32. b	42. c	52. d	62. d	72. c	82. c	92. d
3. d	13. d	23. a	33. a	43. d	53. a	63. a	73. d	83. b	93. a
4. a	14. a	24. c	34. d	44. c	54. a	64. d	74. d	84. a	94. a
5. d	15. d	25. b	35. a	45. a	55. c	65. b	75. b	85. d	95. b
6. c	16. b	26. a	36. a	46. d	56. c	66. c	76. a	86. c	96. a
7. a	17. a	27. a	37. d	47. a	57. a	67. a	77. a	87. d	97. c
8. a	18. a	28. d	38. d	48. b	58. d	68. c	78. c	88. d	98. a
9. c	19. c	29. d	39. a	49. a	59. d	69. a	79. d	89. b	99. d
10. d	20. d	30. d	40. b	50. d	60. d	70. c	80. a	90. a	100. b

MODEL PAPER -10

1. d	11. b	21. d	31. a	41. d	51. a	61. a	71. a	81. d	91. c
2. d	12. c	22. a	32. a	42. d	52. d	62. c	72. d	82. b	92. b
3. a	13. a	23. b	33. a	43. a	53. c	63. c	73. c	83. d	93. a
4. c	14. a	24. d	34. a	44. c	54. b	64. a	74. d	84. d	94. a
5. c	15. a	25. b	35. b	45. c	55. d	65. a	75. d	85. b	95. a
6. c	16. c	26. d	36. d	46. a	56. d	66. a	76. a	86. d	96. d
7. b	17. a	27. a	37. b	47. d	57. c	67. d	77. d	87. b	97. c
8. a	18. a	28. b	38. a	48. d	58. b	68. b	78. d	88. d	98. a
9. b	19. a	29. b	39. a	49. b	59. d	69. a	79. c	89. a	99. a
10. a	20. a	30. b	40. d	50. d	60. b	70. d	80. a	90. b	100. d

BOOK NAME: OBJECTIVE PLANT PATHOLOGY

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