

# Grassroots Academy New Delhi

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## NET JRF TEST 1

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## Full Syllabus Test (CSIR-NET)

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1. Which one is an aromatic amino acid?
  - (a) Histidine
  - (b) Phenylalanine
  - (c) Lysine
  - (d) Valine
2. Which of the following belong to category of systems software?
  - (a) utility programs
  - (b) operating systems
  - (c) all the above
  - (d) none of the above
3. Fat is converted into sugar in oilseed like coconut, sunflower etc., during germination in
  - (a) peroxisome
  - (b) glyoxysome
  - (c) dictyosome
  - (d) spheroplast
4. Palmella state is found in \_\_\_\_\_  
Vaucheria  
Chara  
nitella  
Chlamydomonas
5. The type of selection which favours the extremes of phenotype distribution range over any other intermediate type is called
  - (a) disruptive selection
  - (b) stabilizing selection
  - (c) directional selection
  - (d) centripetal selection
6. Intron is a region of the chromosomal DNA
  - (a) which is a part of a gene that is transcribed and persists in the mature mRNA
  - (b) which is a part of a gene that is transcribed but is removed during maturation of the transcript
  - (c) that is located between two adjacent genes

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(d) that is located at the centromere

7. The number of linkage groups present in human male is

- (a) 24
- (b) 23
- (c) 22
- (d) 46

8. One mole of calcium phosphide on reaction with excess of water gives:

- (a) 2 moles of phosphoric acid
- (b) 1 mole of phosphine
- (c) 2 moles of phosphine
- (d) one mole of phosphorous pentoxide

9. 27 g of Aluminium will react with how many grams of oxygen?

- (a) 8 g
- (b) 24g
- (c) 40 g
- (d) 10 g

10. Compilers convert

- (a) machine language into high level language
- (b) high level language into machine language
- (c) all the above
- (d) none of the above

11. Assume that bacteria is growing exponentially in a nutrient medium . The mediumm depletes by the end of the 20th generation of bacteria . At which generation the medium would have been exactly half the volume ?

- (a) end of 10th generation
- (b) begining of 10th generation
- (c) start of 19th generation
- (d) end of the 19th generation

12. The anticancer drug Vinblastine is obtained from

- (a) *Taxus baccata*
- (b) *Catharanthus roseus*
- (c) *Agathis australis*
- (d) *Mappia foetida*

13. A predation series linking animals to ultimate plant food is called

- (a) tropic level

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- (b) food web
- (c) food cycle
- (d) food chain

14. Snakes are limbless because

- (a) girdles supporting limbs became vestigial
- (b) they have descended from limbless ancestors
- (c) of continued loss of use of limbs
- (d) all the above

15. In WordStar the maximum permissible length of search string is

- (a) 225
- (b) 10
- (c) 65
- (d) none of the above

16. The origin of Akinete is \_\_\_\_\_

- (a) Heterogenous
- (b) Endogenous
- (c) Exogenous
- (d) Partly Endogenous

17. Which of the following is important for growth and synthesis of protoplasm?

- (a) Nucleolus
- (b) Nucleus
- (c) Mitochondria
- (d) Chloroplast

18. Which of the following belong to high level language?

- (a) COBOL
- (b) C
- (c) FORTRAN
- (d) all the above

19. Heart of the computer is

- (a) memory
- (b) CPU
- (c) I/O devices
- (d) none of the above

20. The hot spots for biodiversity in India includes

- (a) eastern ghats and western himalayas

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- (b) western ghats and eastern himalayas
- (c) eastern and western himalayas
- (d) eastern and western ghats

21. Deer differs from antelope in

- (a) lacking horns
- (b) being gregarious
- (c) having even toes
- (d) being nocturnal

22. The predominant antibody in the saliva is

- (a) Ig G
- (b) Ig A
- (c) IgM
- (d) IgD

23. the most widely applied chromosomes banding technique for studying human chromosomes is

- (a) G- banding
- (b) N- banding
- (c) C- banding
- (d) T- banding

24. Prions are

- (a) RNA virus
- (b) proteinaceous infectious particles
- (c) infect the muscle tissue
- (d) eukaryotes

25. The synthesis of glucose from fat is called

- (a) TCA
- (b) Glycolysis
- (c) Gluconeogenesis
- (d) Saponification

26. Which of the following represent hardware component?

- (a) memory
- (b) CPU
- (c) I/O devices
- (d) all the above

27. Conversion of nitrate into ammonia is a/an

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- (a) Reductive process
- (b) Oxidative process
- (c) Transduction
- (d) None of these

28. Asymmetrical reciprocal cross is seen in

- (a) polygenic inheritance
- (b) autosomal inheritance
- (c) sex linked inheritance
- (d) epistatic type of interaction

29. Housekeeping genes are

- (a) are expressed in tumor cells
- (b) are inducible genes
- (c) are expressed in all cells
- (d) do not express at all

30. Several members of one of the following groups exhibit bio-luminescence. It is

- (a) brown algae
- (b) Copepods
- (c) red algae
- (d) dinoflagellates

31. Blast cells are

- (a) cells that blast
- (b) precursors of mature cells
- (c) transformed cells
- (d) enucleated cells

32. Which of the following denote DBMS for microcomputers?

- (a) dBASE
- (b) C
- (c) PASCAL
- (d) none of the above

33. The NET number of moles of ATP produced when one free glucose molecule undergoes glycolysis under aerobic conditions is

- (a) 8
- (b) 9
- (c) 3
- (d) 2

34. The number of bird species recorded in India is
- (a) 500
  - (b) 3200
  - (c) 1200
  - (d) 5700
35. Interveinal chlorosis is caused due to deficiency of
- (a) magnesium
  - (b) calcium
  - (c) sulphur
  - (d) potassium
36. Formation of new species through geographical isolation is called
- (a) sympatric speciation
  - (b) parapatric speciation
  - (c) allopatric speciation
  - (d) both 1 & 3 are correct
37. A bacteria if replicates itself after every 5 minutes. 4 such bacteria are cultured simultaneously. How many bacteria will be present in the culture, after 20 minutes?
- (a) 20
  - (b) 64
  - (c) 32
  - (d) 128
38. Lipids are called macromolecule because they
- (a) form liposomes
  - (b) are major component of membranes
  - (c) form aggregates in water
  - (d) are hydrolysed further into smaller components
39. Addition of mannose-6-phosphate to a protein results in the protein becoming localised in
- (a) golgi complex
  - (b) nucleus
  - (c) lysosome
  - (d) mitochondria
40. Sexuality in algae is \_\_\_\_\_
- (a) Both isogamous and anisogamous
  - (b) Only isogamous
  - (c) Oogamous

(d) Isogamous, anisogamous & oogamous

41. Time slices are measured in

- (a) Hertz
- (b) KB
- (c) milliseconds
- (d) none of the above

42. Indicate the sequence of genes in the genetic map of a locus containing genes m, n and p, 0.5% between n and m and 0.2% between m and p.

- (a) mnp
- (b) nmp
- (c) mpn
- (d) data is not adequate

43. Main memory is also called as

- (a) primary memory
- (b) internal memory
- (c) all the above
- (d) none of the above

44. If the water contains large amounts of organic matter, it denotes that the aquatic ecosystem has

- (a) low BOD
- (b) high BOD
- (c) COD equal to zero
- (d) both 1 & 3 are correct

45. The hormone that is produced by the placenta from the initial stages of its formation is

- (a) prolactin
- (b) Oestrogen
- (c) chorionic gonadotropin
- (d) progesterone

46. The autotrophic form that plays a major role in initiating succession on barren rocks is

- (a) lichens
- (b) xerophytic moss
- (c) angiospermic annuals
- (d) hardy shrubs

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47. Which one of the following is living fossil?
- (a) *Acrostichum aureum*
  - (b) *Vanda caerulea*
  - (c) *Ginkgo biloba*
  - (d) *Funaria hygrometrica*
48. All those Blue green algae which can fix atmospheric nitrogen contain
- (a) Heterocysts
  - (b) Akinetes
  - (c) Aplanospores
  - (d) Parthenospores
49. Which of the following belong to category of systems software?
- (a) utility programs
  - (b) operating systems
  - (c) all the above
  - (d) none of the above
50. The random change in frequency of allele in a population due to chance is called
- (a) genetic drift
  - (b) adaptation
  - (c) isolation
  - (d) selection
51. How would you confirm extra chromosomal inheritance?
- (a) by performing test cross including reciprocal crosses
  - (b) by carrying out nuclear hybridization
  - (c) by carrying out somatic hybridization
  - (d) by crossing plants of known genotypes
52. The  $T_m$  of DNA can be calculated using formula:  $T_m = 69.1 + 0.41(GC)$ , where GC is the percent of guanine+cytosine. A double stranded DNA has 27% adenine, Its  $T_m$  is? In degree Celsius
- (a) 80.37
  - (b) 79
  - (c) 95.40
  - (d) 88
53. What would happen when alanine is replaced by proline in a protein exhibiting alpha helical structure?
- (a) the rigidity of helix increases
  - (b) increase in the number of alpha helix coils

- (c) the alpha helix gets disrupted
- (d) it now exhibits tertiary structure

54. Machine language is what generation language?

- (a) second
- (b) first
- (c) third
- (d) fourth

55. Cladogram that incorporates numerical taxonomy is based on

- (a) homology
- (b) phylogeny
- (c) evolution
- (d) adaptation

56. In WordStar the default value of top page margin setting is

- (a) 2 lines
- (b) 4 lines
- (c) 6 lines
- (d) 3 lines

57. Which antibody appears first during an allergic reaction?

- (a) IgA
- (b) IgM
- (c) IgG
- (d) IgE

58. The number of high energy phosphate bonds in ATP is

- (a) 2
- (b) 1
- (c) 3
- (d) 0

59. The common feature of for the nucleolus, chloroplast, and mitochondria is\_\_\_\_\_

- (a) Lamellae
- (b) Cristae
- (c) Nucleic acid
- (d) Double membrane

60. Genome of an organism refers to its

- (a) total number of chromosomes
- (b) total haploid DNA

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- (c) total number of genes
- (d) total number of proteins

61. During Alpha oxidation, the fatty acid is oxidatively decarboxylated in presence of enzyme \_\_\_\_\_ and Hydrogen peroxide to form \_\_\_\_\_. Select correct pair from the following:

- (a) Glucose 6 phosphate, glucose
- (b) Glucose 6 phosphate, dihydroxyacetone phosphate
- (c) Fatty acid peroxidase, aldehyde
- (d) Phospho glucomutase, aldehyde

62. Machine language is what generation language

- (a) second
- (b) first
- (c) third
- (d) fourth

63. In Hexadecimal system D represents the number

- (a) 16
- (b) 10
- (c) 13
- (d) 15

64. Ferritin antibody is used in

- (a) confocal microscopy
- (b) fluorescence microscopy
- (c) interference microscopy
- (d) phase contrast microscopy

65. Compilers convert

- (a) machine language into high level language
- (b) high level language into machine language
- (c) all the above
- (d) none of the above

66. POST is acronym for

- (a) power on self test
- (b) Post off self test
- (c) power off self test
- (d) none of the above

67. Button like points of intracellular contact that serve as anchoring sites of intermediate filaments and help to hold adjacent cells together are called
- (a) connexons
  - (b) gap junctions
  - (c) cadherins
  - (d) desmosomes
68. In males of drosophila dosage compensation is achieved by
- (a) hyperactivation of X chromosome
  - (b) inactivation of X chromosome
  - (c) inactivation of Y chromosome
  - (d) elimination of X chromosome
69. In animals differentiation of cells is mostly due to
- (a) deletion of specific DNA sequences in specific cell types
  - (b) cell type specific mutations
  - (c) specific gene repression and expression
  - (d) regulated expression of mitochondrial DNA
70. Which of the following have largest number of atoms?
- (a) 0.635 g of Cu
  - (b) 0.5 g atom of Cu
  - (c) 0.25 moles of Cu atom
  - (d) 1 g of Cu
71. The ratio of DNA to protein in chromosome is
- (a) 1:2
  - (b) 2:1
  - (c) 1:1
  - (d) 4:1
72. The minimum number of genes found in an organism with simplest organization is
- (a) 400-500
  - (b) 50-100
  - (c) 1000-2000
  - (d) 4000-6000
73. Species specific chromosomal abnormalities involving change as small as 1.5-4.0 Mbp can be detected by
- (a) flow cytometry
  - (b) tritiated -thymidine banding
  - (c) in-situ hybridization

(d) chromosomal banding

74. Frameshift mutation occurs due to

- (a) deletion
- (b) addition
- (c) both 1 & 2
- (d) inversion

75. Base of hexadecimal system is

- (a) 16
- (b) 8
- (c) 2
- (d) 12

76. In a first order enzyme reaction 30% of the substrate is converted into product in one minute. The value of the velocity constant  $k$  (at one minute) of the reaction is

- (a) 0.356
- (b) 0.124
- (c) 0.431
- (d) 0.893

77. Which one is a sulfur containing amino acid

- (a) Leucine
- (b) Cysteine
- (c) valine
- (d) Alanine

78. Well developed plant body with dimorphic branches, cells impregnated with  $\text{CaCO}_3$  and silica particles and chloroplasts without pyrenoids are the characteristics of class \_\_\_\_\_

- (a) Charophyceae
- (b) Myxophyceae
- (c) Euglenophyceae
- (d) All of these

79. For separation of DNA fragments in the range of 200-1000 Kb one would employ

- (a) Paper chromatography
- (b) pulse field gel electrophoresis
- (c) HPLC
- (d) PAGE

80. Systemic lupus Erythrematous is

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- (a) autoimmune disorder
- (b) infectious disease
- (c) immuno disorder
- (d) metabolic disorder

81. Which of the following belong to high level language?

- (a) COBOL
- (b) C
- (c) FORTRAN
- (d) all the above

82. Hardy Weinberg equation helps one to calculate the-----in a population from one generation to another

- (a) number of genes
- (b) gene frequency
- (c) allelic frequency
- (d) mutational rate

83. The forces which maintains the three dimensional structures of a protein is mainly

- (a) covalent
- (b) non-covalent
- (c) co-ordinate
- (d) both a and b

84. A bacterial cell carrying two copies of a region of the genome is said to be

- (a) merodiploid
- (b) amphidiploid
- (c) partial polyploid
- (d) semidiploid

85. Which one of the following planktonic form requires silicon for multiplication?

- (a) ciliata
- (b) dinoflagellate
- (c) cyanobacteria
- (d) diatoms

86. Which one of following is a calcium binding protein?

- (a) myosin
- (b) actin
- (c) troponin
- (d) tropomyosin

87. Which of the following is based on magnetic media?
- (a) Hard disk
  - (b) Diskettes
  - (c) all the above
  - (d) none of the above
88. In blue green algae, the source of electrons in the reduction of nitrates into nitrites is
- (a) Reduced FADH<sub>2</sub>
  - (b) Oxidised FAD
  - (c) Reduced NADPH<sub>2</sub>
  - (d) Reduced ferredoxin
89. Infant suffering from galactosemia are unable to utilize normal milk because they
- (a) are unable to hydrolyse lactose
  - (b) lack the enzyme glucokinase in the liver
  - (c) lack the enzyme galactose-1-phosphate uridylyl transferase
  - (d) accumulate the sugar alcohol
90. DNA duplication occurs in
- (a) meiosis only
  - (b) mitosis only
  - (c) meiosis -I and mitosis
  - (d) meiosis -II and mitosis
91. LOTUS 1-2-3 is a
- (a) music player
  - (b) spreadsheet program
  - (c) html editor
  - (d) web browser
92. The region of marine ecosystem showing greatest biodiversity is
- (a) deep sea
  - (b) coral reef
  - (c) coastal area
  - (d) neritic zone
93. The cation required by photosystem II for splitting of water is
- (a) calcium ions
  - (b) magnesium ions
  - (c) manganese ions

(d) zinc ions

94. Prokaryotic nature of cells are found in \_\_\_\_\_

- (a) Charophyceae
- (b) Cyanophyceae
- (c) Rhodophyceae
- (d) All of these

95. cdc2 is found to be maximally active during

- (a) M phase
- (b) G1 phase
- (c) S phase
- (d) G2 phase

96. Helper T cells can be distinguished from cytotoxic T-Cells due to the presence of

- (a) CD4 as marker
- (b) MHC complex
- (c) CD3
- (d) B220

97. Predominating pigment found in Rhodophyceae is called \_\_\_\_\_

- (a) C-phycoerythrin
- (b) C-phyococynin
- (c) Chlorophylls with carotenoid
- (d) None of these

98. Ethyl Methane sulphonate (EMS) is a electrophile that act:

- (a) by attacking basic proteins
- (b) by attacking DNA and alkylating it
- (c) by attacking basic macromolecules
- (d) by basic macromolecules

99. Which amino acid has a good buffering capacity against added acid at physiological pH?

- (a) Glycine
- (b) Cysteine
- (c) Arginine
- (d) Histidine

100. ALU uses set of registers to perform intermediate calculations and store the final result called

- (a) Memory

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- (b) Accumulator
- (c) ROM
- (d) none of the above

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