Gujarat Biotechnology Research Centre
Technical Assistant Mains

Application No: _____

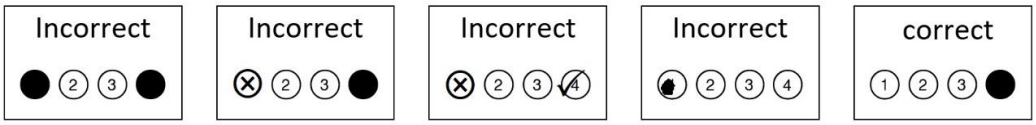
This question booklet contains 32 pages

Time: 2 Hours
Total Marks: 200
Total Questions: 200

Candidate Signature : ..... Invigilator Signature : .....

Instructions for Candidate

1. This question booklet contains 200 questions.
2. Each correct answer carries 1 mark.
3. Every attempted question with incorrect answer shall carry a negative mark of 0.25.
4. Use only Black Ball Point Pen to darken the appropriate circle in OMR.
5. Please darken the complete circle.
6. Darken ONLY ONE CIRCLE for each Question as shown below:



7. Answer once marked cannot be changed.
8. Please do not make any stray marks on the Question Booklet.
9. Rough works must be done on the blank page of Question Booklet.
10. Mark your answer in the appropriate space in the Answer Sheet against the Number corresponding to the question.
11. The Candidate has to submit Question booklet and OMR response sheet to the invigilator on conclusion of examination.

શબ્દસમૂહ માટે એક શબ્દ આપો. (પ્રશ્ન ૧ અને પ્રશ્ન ૨)

1 અડધી મીંચાયેલી અડધી ખુલ્લી

(A) અર્ધખુલ્લી

(B) અર્ધનિમીલિત

(C) અર્ધબંધલિત

(D) અર્ધખુલિલિત

2 દશ વર્ષનો સમયગાળો

(A) દશમ

(B) દશકો

(C) દશક

(D) દશાંક

સમાનાર્થી શબ્દ આપો. (પ્રશ્ન ૩ અને પ્રશ્ન ૪)

3 બાળપણ

(A) શૈશવ

(B) બાળક

(C) શિશુ

(D) કિશોર

4 વલોપાત

(A) દુ:ખ

(B) તરખાટ

(C) તરવરાટ

(D) રોકકળ

વિરુધ્ધાર્થી શબ્દ આપો. (પ્રશ્ન ૫ અને પ્રશ્ન ૬)

5 ઉદ્ધત

(A) ઉચ્છૃંખલ

(B) ભવ્ય

(C) ઉન્નત

(D) વિનીત

6 પોલું

(A) નક્કર

(B) ખાલી

(C) નિર્બળ

(D) ભરેલું

7 **નીચેના શબ્દોમાંથી જે શબ્દની જોડણી સાચી હોય, તે શોધો. (પ્રશ્ન ૭ અને પ્રશ્ન ૮)**

(A) પ્રતિબિંબ

(B) પ્રતીબિબ

(C) પ્રતિબીંબ

(D) પ્રતિબિબ

8 (A) પ્રથમિક

(B) પ્રાથમીક

(C) પ્રાઃથમિક

(D) પ્રાથમિક

નીચેનાં વાક્યોમાં રેખાંકિત સંજ્ઞાનો પ્રકાર, આપેલા વિકલ્પોમાંથી શોધો. (પ્રશ્ન ૯ અને પ્રશ્ન ૧૦)

9 એનો <u>વિવાહ</u> કાલે રાખ્યો છે.

(A) વ્યક્તિવાચક

(B) જાતિવાચક

(C) ભાવવાચક

(D) દ્રવ્યવાચક

10 તેના પગ <u>કાદવ</u>થી ખરડાયા.

(A) જાતિવાચક

(B) ભાવવાચક

(C) દ્રવ્યવાચક

(D) સમૂહવાચક

નીચે આપેલાં વાક્યમાં રેખાંકિત પદ કઈ વિભક્તિમાં છે, તે વિકલ્પોમાંથી શોધો. (પ્રશ્ન ૧૧ અને પ્રશ્ન ૧૨)

11 <u>સિક્કો</u> એણે કાળજીથી સાચવી રાખ્યો.

(A) કર્મ

(B) કર્તા

(C) અપાદાન

(D) કરણ

12 માલધારીઓ ડાંગ કે <u>લાઠીથી</u> સિંહને ભગાડી મૂકે છે.

(A) કર્તા

(B) સંબંધ

(C) કરણ

(D) અપાદાન

નીચેનાં વાક્યમાં રેખાંકિત કરેલાં વિશેષણો કયા પ્રકારનાં છે, તે શોધો ? (પ્રશ્ન ૧૩ અને પ્રશ્ન ૧૪)

13 થોડાક કેશ ઉતારી તેની સારંગી બનાવી.

(A) ગુણવાચક

(B) આકારવાચક

(C) પરિમાણવાચક

(D) સાર્વનામિક

14 અમે હુતુતુતુની રમત રમતા હતા.

(A) ગુણવાચક

(B) સાર્વનામિક

(C) પરિમાણવાચક

(D) પરિણામવાચક

કર્મણિવાક્ય શોધીને લખો :

15 કોઈ દાંત વગર ચવાણું ખાય કેવી રીતે?

(A) દાંત વગર ચવાણું ખવાય કેવી રીતે?

(B) દાંત વગર ચવાણું કોણ ખાય?

(C) દાંત વગર ચવાણું તે ખાય છે.

(D) કોઈ ચવાણું દાંત વગર કેવી રીતે ખાય?

નીચેનાં વાક્યોમાંથી કર્તરિવાક્ય શોધીને લખો :

16 ઈશ્વરથી પાપની સજા કરાતી હતી.

(A) ઈશ્વર પાપની સજા કરે છે.

(B) ઈશ્વર પાપની સજા કરશે.

(C) ઈશ્વર પાપની સજા કરતો હતો.

(D) ઈશ્વર પાપની સજા કરવામાં જ છે.

પ્રેરકવાક્ય શોધીને લખો :

17 પોપટને છોડી દઈએ.

(A) આપણે પોપટને છોડીએ.

(B) આપણે પોપટને છોડાવી દઈએ.

(C) પોપટને આપણે છોડીએ ખરા?

(D) આપણે પોપટને શા માટે છોડીએ, હેં?

સમાસો ઓળખાવો. (પ્રશ્ન ૧૮ અને પ્રશ્ન ૧૯)

18 'વાહન બનેલા દેહની કેવી દશા થશે?'

(A) ઉપમા

(B) ઉત્પ્રેક્ષા

(C) રૂપક

(D) અતિશયોક્તિ

19 ત્યાં તો પેલી ચપળ દીસતી વાદળી જાય ચાલી.

(A) વર્ણાનુપ્રાસ

(B) અનન્વય

(C) ઉપમા

(D) સજીવારોપણ

નીચે આપેલા વાક્યોમાં રેખાંકિત શબ્દ કયા કૃદંતનો છે તે શોધો.

20 એ રાત્રે તો <u>જમતાં</u> નથી.

(A) વર્તમાનકૃદંત

(B) હેત્વર્થકૃદંત

(C) વિધ્યર્થકૃદંત

(D) ભૂતકૃદંત

આપેલાં વાક્યમાંથી ભાવેવાક્ય શોધો.

21 મહારાજ ખુશ થઈ ગયા.

(A) મહારાજથી ખુશ થઈ જવાયું.

(B) મહારાજ ખુશી વ્યક્ત કરશે.

(C) મહારાજ ખુશ થશે.

(D) મહારાજ શા માટે ખુશ થાય?

રૂઢિપ્રયોગનો અર્થ આપો. (પ્રશ્ન ૨૨ અને પ્રશ્ન ૨૫)

22 ચસકો લાગવો

(A) ખોટે રવાડે ચઢવું, ટેવને અધીન થઈ વર્તવું

(B) સાધન કે નિમિત્ત બનવું

(C) ધ્યાન ન આપવું

(D) મમતા બંધાવી

23 હાથ પગ હલાવવા

(A) ગળી જવું

(B) દિલગીરી હોવી

(C) મહેનત કરવી

(D) સાંખી લેવું

24 મચક ના આપવી

(A) સ્વીકાર કરવો

(B) ખુબ અધીરા બની જવું

(C) લાગણીવશ થઇ જવું

(D) સહેજ પણ ઝૂકવું નહિ

25 એક કાંકરે બે પક્ષી મારવાં

(A) પુષ્કળ વિરોધ થવો

(B) એક કામ દ્વારા બે ધ્યેય હાંસલ કરવાં

(C) ખૂબ અધીરા બની જવું

(D) ખેદાનમેદાન કરી દેવું

26 Instead of.....prove your worth by.....something.

(A) begging, demanding

(B) talking, doing

(C) worrying, paying

(D) writing, reading

27 I don't.....I shall be.....to go.

(A) know, able

(B) consider, desirous

(C) think, able

(D) believe, liking

28 The poet _____the beauty of the courtesan with his lyrical melodies.

(A) condemned

(B) disparaged

(C) scorned

(D) extolled

Q. (29 to 31) In these questions look at the bold part of each sentence. Below the sentence are given three possible substitutions for the bold part. If any one of substitutions (A), (B) or (C) is better than the bold part, choose that substitution as your response. If none of the substitutions improves the sentence, choose (D) as your response. Thus, a 'No improvement' response will be signified by the letter (D).

29 Hardly had he saddled the horse **than** the mare broke loose and galloped down the hill.

(A) That

(B) When

(C) Than

(D) No improvement

30 The speaker tried to work **up** the emotions of his audience.

(A) round

(B) off

(C) in

(D) No improvement

31 **Until** the sky is overcast, I take my raincoat with me.

(A) When
(B) Even if
(C) Whenever
(D) No improvement

Q. (32 to 34) In this section, you find a number of sentences, part of which is underlined. You may also find only a group of words which is underlined. For each underlined part, four words/phrase are listed below. Choose the word nearest opposite in meaning of the underlined part:

32 If you pamper the child you will regret it.

(A) Scold
(B) Scorn
(C) Discoursge
(D) Neglect

33 The artist led a very austere life.

(A) luxurious
(B) boisterous
(C) exciting
(D) eventful

34 The new boss is well-known for his rigid approach to all problems.

(A) swift
(B) logical
(C) sympathetic
(D) flexible

35 The story of his escape was very _____.

(A) excitable
(B) exciting
(C) excited
(D) excite

Fill in the blank.

36 If you annoy the God, it is _____ to bite you.

(A) apt
(B) liable
(C) likely
(D) seem

Select the word which is most nearly opposite in meaning to the word given in capital letters. (Q. 37 & 38)

37 CONCISE

(A) Wrong
(B) Smooth
(C) Precise
(D) Wordy

38 CHEAP

(A) Dull
(B) Fair
(C) Dear
(D) False

The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph: (Q. 39 & 40)

39 (A) It results from a carefully revised plan
(B) Men work together for a cause or purpose.
(C) Team work does not just happen.
(D) It must be clearly known to them.

(A) BCAD
(B) CBDA
(C) BCDA
(D) CABD

40 (A) The two neighbours never fought each other.
(B) Fights involving three male fiddler crabs have been recorded, but the status of the participants was unknown.
(C) They pushed or grappled only with the intruder.
(D) We recorded 17 cases, in which a resident that was fighting an intruder was joined by an immediate neighbour, an ally.
(E) We, therefore, tracked 268 intruder males until we saw them fighting a resident male.

(A) BEDAC
(B) DEBAC
(C) BDCAE
(D) BCEDA

In these questions look at the bold part of each sentence. Below the sentence are given three possible substitutions for the bold part. If any one of substitutions (A), (B) or (C) is better than the bold part choose that substitution as your response. If none of the substitutions improves the sentence, choose (D) as your response. Thus, a 'No improvement' response will be signified by the letter (D). (Q. 41 & 42)

41 The Principal lamented that though a detailed report was submitted to the management a month ago, **no action is being taken so far.**

(A) No action had taken
(B) no action has been taken
(C) any action had been taken
(D) No improvement

42 **Leaving aside little room** for misinterpretation, the senior politician offered clarification about his role in the past elections.

(A) Leaving less room for
(B) Leaving little room for
(C) Having left less room for
(D) No improvement

Read each sentence to find out whether there is any grammatical or idiomatic error. The error if any, will be in one part of the sentence. The number of that part is the answer. If there is no error, then answer is No error. (Ignore the errors of punctuation, if any.) (Q. 43 & 45)

43 He don't know (a) / the difference between (b) / a ship and a submarine. (c) / No error (d)

(A) He don't know
(B) the difference between
(C) a ship and a submarine.
(D) No error

44 Yesterday I met an old friend (a)/ when I am going (b)/ to the market. (c)/ No error (d)

(A) Yesterday I met an old friend
(B) when I am going
(C) to the market.
(D) No error

45 No sooner did we (a)/ find out a solution (b)/ to the problem (c)/ when another problem cropped up. (d)

(A) No sooner did we
(B) find out a solution
(C) to the problem
(D) when another problem cropped up.

46 Suresh has gone away. He'll be away_____ Saturday

(A) by
(B) until
(C) on
(D) in

47 Manisha was very angry with me. She didn't speak to me _____ a week.

(A) for
(B) during
(C) in
(D) while

Give meanings of the idioms/phrases (Q. 48 & 49)

48 To put two and two together

(A) to bear the brunt of
(B) to conclude from obvious fact
(C) to put off
(D) to put on a false appearance

49 To smell a rat

(A) to see hidden meaning
(B) to smell bad odour
(C) to misunderstand
(D) to suspect a trick or deceit

50 Many companies see technology as a _____ for a whole host of business problems.

(A) consideration
(B) panacea
(C) linking
(D) preference

51 The protein that binds to the linker DNA between nucleosomes is

(A) H4
(B) H3
(C) H1
(D) H2

52 A remarkable method to introduce foreign DNA into mainly plant is

(A) Biolistics
(B) Microinjection
(C) Transfection
(D) Transformation

53 Localization of the genes on the chromosomes can be done by

(A) FISH
(B) Flow cytometry
(C) Cloning
(D) RE digestion

54 Which of the following is the powerful antigen presenting cell?

(A) Dendritic cells
(B) Macrophages
(C) Endothelial cells
(D) Plasma cell

55 Which of the following genes would be associated with ovarian and breast cancer:

(A) hMLH1 and hMSH2
(B) BRCA1 and ERBB2
(C) BRCA1 and BRCA2
(D) TGFBR2 and BRCA2

56 An important fact regarding polygenic traits is that they:

(A) Show continuous variation
(B) Show discontinuous variation
(C) Skip a generation
(D) Do not skip a generation

57 Which option is correct for Protozoa?

(A) Lacking embryo
(B) Physiological Division of Labour
(C) Coelom present
(D) Diploblastic animals

58 The proteins that form the walls of the microtubules are

(A) actin
(B) tubulin
(C) pectin
(D) hydroxyproline

59 The cultivating animal cells under in-vitro conditions using appropriate media is called_____

(A) Gene expression
(B) Transgenetic animals
(C) Hybrid culture
(D) Animal cell culture

60 Point out the wrong or irrelevant mathematical method in motif analysis.

(A) Enumeration
(B) Probabilistic Optimization
(C) Deterministic Optimization
(D) Literature mining

61 A problem exists when comparing _____ sequences using the dot matrix method, namely, the _____

(A) small, amplification
(B) large, amplification
(C) small, high noise level
(D) large, high noise level

62 The dynamic programming method produces ____ structure with _____ score.

(A) one, single best
(B) multiple, single best
(C) multiple, multiple
(D) single, multiple

63 The term “Flybase” is a …

(A) model organism database
(B) biodiversity database
(C) biomolecular database
(D) literature database

64 The following term describes the chemical breakdown of a substance to smaller molecules caused by microbes or enzymes.

(A) Bioaccumulation
(B) Mineralization
(C) Biodegradation
(D) Biotransformation

65 A population of cells derived from a single cell are called

(A) Monclonal cells
(B) Clones
(C) Protoplasts
(D) Sub culture

66 The two enzymes commonly used for isolation of protoplasts from plants are

(A) Cellulase and Lipase
(B) Cellulase and Amylase
(C) Pectinase and Cellulase
(D) Pectinase and Lipase

67 Which of the following carbohydrates is NOT classified as dietary fibre?

(A) Agar
(B) Pectin
(C) Sodium Alginate
(D) Tapioca starch

68 Which one is required for Vitamin B12 absorption in small intestine?

(A) Cobalophilin
(B) Hephaestin
(C) Hepcidin
(D) Na+-Cotransporter

69 Which kind of cleavage is shown in mammals?

(A) Holoblastic rotational
(B) Meroblastic rotational
(C) Holoblastic radial
(D) Meroblastic radial

70 Which one of the following is the most powerful buffer system of blood?

(A) Bicarbonate
(B) Phosphate
(C) Proteins
(D) Hemoglobins

71 Which type of cell located in gastric glands is responsible for the release of histamine?

(A) Mucus neck cells
(B) Enterochromaffin like cells
(C) chief cells
(D) parietal cells

72 Bones of vertebrates are derived from embryonic

(A) ectoderm
(B) epiderm
(C) mesoderm
(D) endoderm

73 An alga having chlorophyll a, floridean starch as storage product and lacking flagellate cells belongs to the class

(A) Phaeophyceae
(B) Chlorophyceae
(C) Rhodophyceae
(D) Xanthophyceae

74 Which of the following geological periods is characterized by the first appearance of mammals?

(A) Tertiary
(B) Cretaceous
(C) Permian
(D) Triassic

75 Which one of the following skeletal muscles of human body contains highest number of muscle fibre in a motor unit?

(A) Muscles of hand
(B) Extracellular muscles
(C) Muscles of leg
(D) Muscles of face

76 In which texa, the percentage of endangered species is highest?

(A) amphibian
(B) reptiles
(C) birds
(D) fish

77 On average, how much plant biomass is removed by terrestrial herbivores?

(A) 10%
(B) 18%
(C) 30%
(D) 51%

78 Aquatic ecosystem are least likely to be limited by which of the following nutrients?

(A) nitrogen
(B) carbon
(C) phosphorus
(D) iron

79 The virus inserted in genome can be recognized by

(A) FISH
(B) Northern blot
(C) Microarray
(D) Southern blot

80 Which of the following transgenic crops have been approved for commercial cultivation in India?

(A) cotton
(B) brinjal
(C) cotton and brinjal
(D) cotton, brassica, brinjal

81 Which one of the following ecosystems is known as the 'Land of Big Games'?

(A) Prairie
(B) Taiga
(C) Savannah
(D) Selvas

82 The pioneers in xerarch succession are the

(A) crustose lichen
(B) mosses
(C) foliose lichen
(D) shrubs

83 Succession initiated on large sand deposits or deserts is called

(A) hydrosere
(B) psammosere
(C) xerosere
(D) oxylosere

84 The intermediate developmental stages in the ecological succession is called

(A) sere
(B) ecesis
(C) climax
(D) nudation

85 The moisture contained in clouds and precipitated as snow, hail, rain etc constitutes _____

(A) Atmospheric water
(B) Surface water
(C) Groundwater
(D) Subterranean water

86 In which of the following water bodies, the role of photosynthetic organisms is considerably reduced?

(A) Lakes
(B) Ponds
(C) Estuaries
(D) Streams

87 Which of the following comes under the category of positive association?

(A) neutralism
(B) parasitism
(C) commensalism
(D) ammensalism

88 How much time does nitrifying bacteria require to grow at an incubation of 25 - 30^0C?

(A) 1 day
(B) 2-3 days
(C) 15 days
(D) 1 to 4 months

89 Fresh air contains approximately _____ percent carbon dioxide by volume.

(A) 0.01
(B) 2
(C) 5
(D) 0.03

90 Purple and green sulfur bacteria use _____ as the electron donor to reduce carbon dioxide.

(A) S^{2-}
(B) SO_4^{2-}
(C) H_2S
(D) Organic acids

91 Which of the following is an intensive method of land treatment?

(A) Rapid infiltration
(B) Infiltration
(C) Slow rate
(D) Over flow

92 Aerobic bio degradation has a minimum oxygen requirement of _____

(A) 0.5 mg/litre
(B) 2 mg/litre
(C) 1 mg/litre
(D) 1.5 mg/litre

93 How does salt reaches the soil surface during dry season?

(A) Diffusion
(B) Capillary rise
(C) Active transport
(D) Passive transport

94 What does compost do to the alkaline soil?

(A) Wash away salts and chemicals
(B) Increase the pH
(C) Leads to the death of microorganisms
(D) Leads to soil contamination

95 Which material is not used as an abrasive for cell disruption?

(A) Sand
(B) Alumina
(C) Glass beads
(D) Charcoal

96 Which one is the oxygen transporing protein of the blue colored blood of horse shoe crab?

(A) Hemoglobin
(B) Hemocyanin
(C) Hemoerythrin
(D) Cupredoxin

97 Which of the following procedure leads to strain improvement?

(A) rDNA Technology
(B) Conjugation
(C) Transformation
(D) Transduction

98 What is compared in the Analysis of variance?

(A) standard deviations
(B) variances
(C) means
(D) proportions

99 Which of the following cells is involved in cell-mediated immunity?

(A) Leukaemia
(B) T cells
(C) Mast cells
(D) Thrombocytes

100 Which is not a type of BLAST program?

(A) tBLASTn
(B) PHI-BLAST
(C) tBLASTp
(D) BLASTx

101 Process which is not a part of protein expression

(A) Replication
(B) Transcription
(C) RNA processing
(D) Translation

102 DNA polymerase for prokaryote replication is

(A) DNA Polymerase I
(B) DNA Polymerase II
(C) DNA Polymerase III
(D) DNA Polymerase IV

103 Basic laminar flow cabinet works

(A) With inward air flow and constant positive air pressure
(B) With outward air flow and constant positive air pressure
(C) With inward air flow and constant negative air pressure
(D) With outward air flow and constant negative air pressure

104 Enzyme which is not a protein

(A) Transferases
(B) Ligases
(C) Catalytic RNA
(D) Oxidoreductases

105 Founder effect on population is a case of

(A) Genetic Drift
(B) Natural Selection
(C) Mutation
(D) Gene Flow

106 What is the correct order of taxonomic groups from higher to lower rank?

(A) Kingdom—Order—Class—Family—Genus—Species
(B) Order—Class—Division—Family—Genus—Species
(C) Kingdom—Divison—Order—Family—Class—Genus—Species
(D) Kingdom—Division—Class—Order—Family—Genus—Species

107 What is the use of venturi?

(A) To generate low-pressure
(B) To remove grit
(C) To generate high pressure
(D) To break the foam

108 RNA instability in alkaline solutions is due to _____

(A) adenine
(B) ribose
(C) uracil
(D) single strand nature

109 The antifungal compound used in mammalian cell culture media:

(A) Streptomycin
(B) Gentamycin
(C) Nystatin
(D) Tetracycline

110 Which of the following element is not a part of Direct operating costs?

(A) Raw materials
(B) Labor & services
(C) Utilities
(D) Insurance & taxes

111 Which of the following characteristics is not associated with E. coli?

(A) Non-motile
(B) Non-spore former
(C) Lactose fermenter
(D) facultative anerobic

112 Which of the following is not used in Southern Blotting?

(A) Agarose gel electrophoresis containing formaldehyde
(B) Agarose gel electrophoresis without formaldehyde
(C) Alkali denaturation
(D) Use of nylon membrane

113 The genome size (bp) of Homo sapiens is

(A) 7.0×10^4
(B) 3.0×10^9
(C) 3.5×10^4
(D) 3.0×10^6

114 Which of the following point is not related with RFLP?

(A) Species specific probes are required
(B) Slower process compared to RAPD
(C) can detect allelic variant
(D) cannot detect allelic variant

115 Cysteine gene is used in production of transgenic sheep for

(A) growth hormone
(B) wool production
(C) increased ovulation rate
(D) lactoferrin

116 The genes associated with diabetes mellitus are located on Chromosome number

(A) 21
(B) 12
(C) 16
(D) 19

117 The first prokaryotic (bacterial) genome to be sequenced was that of

(A) Escherichia coli
(B) Neisseria gonorrheae
(C) Methanogen janaschii
(D) Hemophilius influenzae

118 Which of the following lead to the development of proteomics?

(A) Flow cytometry
(B) Nucleotide sequencing
(C) Microarray technology
(D) 2D-gel electrophoresis

119 Secondary metabolites are produced during

(A) Tropophase
(B) Exponential phase
(C) Idiophase
(D) Lag phase

120 Riboflavin is also known as

(A) Cyanocobalamine
(B) Vit B6
(C) Vit B2
(D) Vit K

121 The purpose of gene cloning is to produce large amounts of foreign protein in pure form. The sequence of the cloning process is critical to the production of clones. Which of the following steps initializes the cloning process?

(A) Isolation and fragmentation of source DNA
(B) Amplification of source DNA
(C) Joining of host DNA to a cloning vector
(D) Incorporation of a cloning vector into the host cell

122 A health disorder that results from the deficiency of thyroxine in adults and characterized by (i) a low metabolic rate (ii) increase in body weight and (iii) tendency to retain water in tissues is

(A) Hypothyroidism
(B) Simple goitre
(C) Myxoedema
(D) Cretinism

123 Which enzyme is also called swiveling protein?

(A) Polymerase
(B) Gyrase
(C) Helicase
(D) Primase

124 What is the outcome of nonsense mutation ?

(A) Replacement of amino acid in protein
(B) Premature termination of protein synthesis
(C) Restoration of phenotype
(D) Restoration of genotype and phenotype

125 The enzyme involved in amino acid activation is

(A) amino acyl mRNA synthetase
(B) amino acyl rRNA synthetase
(C) amino acyl tRNA synthetase
(D) ATP synthetase

126 The vector having capacity to carry largest DNA fragments is

(A) pBR 322
(B) BAC
(C) pUC 18
(D) Cosmid

127 In plant cells, a large, fluid-filled space inside the cell that helps the cell maintain its shape and may also be used to store nutrients and waste products. In animal cells, small fluid spaces inside the cell that are used to store nutrients and waste products.

(A) chloroplast
(B) vacuole
(C) ribosome
(D) cell wall

128 Which of the following statement is correct?

(A) In most types of cells, glycolysis occurs only in the cytosol.
(B) Glycolysis splits glycogen into two molecules of pyruvate that enter the mitochondrion.
(C) Glycolysis, like the tricarboxylic acid cycle, produces ATP
(D) One turn of the tricarboxylic acid cycle produces three molecules of FADH2 and of NADH

129 In linearly polarised light, oscillations are confined to _____ plane

(A) Double
(B) Four
(C) Three
(D) Single

130 Which one of the following is the best tool to study the interacting residues in protein-ligand interaction ?

(A) X-ray crystallography
(B) Circular dichroism spectroscopy
(C) UV – Vis spectroscopy
(D) Fluorescence spectroscopy

131 Which of the following technique of separation is based on polarity of the product?

(A) Supercritical Fluid Extraction
(B) Solvent Recovery
(C) Liquid Liquid Extraction
(D) Ultracentrifugation

132 Which is the most appropriate kind of bioreactor for Alcohol fermentation ?

(A) Cyclone Fermenter
(B) Air lift Fermenter
(C) Packed Bed Reactor
(D) Tower Fermenter

133 In reversible non-competitive enzyme activity inhibition

(A) Inhibitor bears structural resemblance to substrate
(B) Inhibitor lowers the maximum velocity attainable with a given amount of enzyme
(C) Km is increased
(D) Km is decreased

134 Which one of the statement is not correct?

(A) The rate of absorption of water is almost directly proportional to the rate of transpiration
(B) Soil temperature, soil aeration, relative humidity, amount of soil water and transpiration are factors affect the absorption
(C) Water is removed in the form of vapours during transpiration
(D) If the atmosphere is humid , it increases the rate of transpiration

135 Enzyme degrade RNA from DNA/RNA hybrid is

(A) RNase A
(B) RNase H
(C) RNase B
(D) All RNase

136 ATP as a cofactor is required for

(A) E coli DNA ligase
(B) Ligase from thermophillic bacteria
(C) T4 DNA ligase
(D) Eukaryotic DNA ligase

137 Major cell organelle involved in detoxification is

(A) Peroxisome
(B) Mitochondria
(C) Rough endoplasmic reticulum
(D) Smooth endoplasmic reticulum

138 Most abundant group of phospholipid in cell membrane is

(A) Cephalins
(B) Lecithin
(C) Phosphatidylserine
(D) Cardiolipin

139 Chromosome is best visible during

(A) Anaphase
(B) Prophase
(C) Metaphase
(D) Telophase

140 Which one of the following is protein structure database?

(A) Genebank
(B) PIR
(C) PDB
(D) DDBJ

141 What is Oligonucleotide?

(A) Long nucleic acid
(B) Short nucleic acid
(C) Nucleotide
(D) Nucleoside

142 During transcription, the mRNA is modified at

(A) Both 5′ and 3′ ends
(B) 3′ ends
(C) 5′ ends
(D) Can not modify

143 Genetic code consist of "How many codons?"

(A) 46
(B) 64
(C) 84
(D) 48

144 What is Euchromatin?

(A) Most tightly packed form of chromatin
(B) Lightly packed form of chromatin
(C) Most tightly packed form of chromatids
(D) Lightly packed form of chromatid

145 The most commonly occurring phenotype in a population is called

(A) Wild type
(B) Mutant
(C) Dominant
(D) Recessive

146 How many percentage of Zebrafish genes are known to be associated with human diseases as zebrafish counterpart

(A) 80%
(B) 50%
(C) 84%
(D) 70%

147 Hydrolysis of a peptide involves cleavage of the bond between the atoms

(A) N and C
(B) C and O
(C) Cα and C
(D) N and Cα

148 Amino acid residues predominantly involved in protein-DNA interactions are

(A) prolines
(B) alanines
(C) positively charged
(D) negatively charged

149 Among the following which is not an essential fatty acid?

(A) Elaidic acid (18:1; 9)
(B) Arachidonic acid (20:4; 5, 8, 11, 14)
(C) Cervonic acid (22:6; 4, 7, 10, 13, 16, 19)
(D) Timnodonic acid (20:5; 5, 8, 11, 14, 17)

150 What is the source of the extra chromosome 21 in an individual with Down syndrome?

(A) Duplication of the chromosome
(B) Nondisjunction in the mother only
(C) Nondisjunction or translocation in either parent
(D) Nondisjunction in the father only

151 The three DNA sequences ,which define a chromosome, include all of the following except _____

(A) Telomere
(B) Enhancer
(C) origin of DNA replication
(D) Centromere

152 Innate immunity includes molecular and cellular mechanisms predeployed before an infection and poised to prevent or eliminate it. Among the following, which is not a component of innate response _____

(A) immnunoglobulins
(B) complement proteins
(C) macrophages
(D) natural Killer cells

153 A typical receptor senses extracellular stimuli by virtue of its localization on plasma membrane. The receptor to which of the following ligand is an exception to this rule?

(A) Estrogen
(B) Luteinizing hormone
(C) y-amino butyric acid
(D) Acetylcholine

154 How extracted DNA from formalin fixed paraffin embedded tissue is quantified?

(A) on agarose gel
(B) on page gel
(C) gradient gel
(D) by Qubit

155 Which of the following induce gene silencing?

(A) mRNA
(B) tRNA
(C) rRNA
(D) miRNA

156 Which has a very efficient mechanism of delivering its 48,502 bp of DNA into a bacterium?

(A) M12 phage
(B) Bacteriophage lambda
(C) M13 phage
(D) T-even phage

157 Which of the following is B- cell marker?

(A) CD3
(B) CD19
(C) CD33
(D) CD34

158 Which tumor virus carries a gene for the protein E1A which binds to retinoblastoma protein, pRb?

(A) Rota Virus
(B) Mokola Virus
(C) Adeno Virus
(D) Aichi Virus

159 _____ is a gelatinous substance found within the umbilical cord.

(A) Red Marrow jelly
(B) Yellow Marrow jelly
(C) Wharton's jelly
(D) Cytosol

160 Which cytochrome 450 has a key role in warfarin metabolism?

(A) CYP2C9
(B) CYP2D6
(C) CYP2C19
(D) CYP3A4

161 In flowcytometer forward scatter measures .

(A) dead cells
(B) cell size
(C) granularity
(D) apoptotic cells

162 The RNA viruses contain reverse transcriptase known as _____.

(A) Adeno Viruses
(B) Retro Viruses
(C) Papova Viruses
(D) Herpes Viruses

163 Protein synthesis occurs on _____ , which consist of protein and rRNA.

(A) lysosomes
(B) ribosomes
(C) mitochondria
(D) golgi apparatus

164 In the α helix, the hydrogen bonds:

(A) are roughly parallel to the axis of the helix.
(B) are roughly perpendicular to the axis of the helix.
(C) occur mainly between electronegative atoms of the R groups.
(D) occur only between some of the amino acids of the helix.

165 The complete set of proteins that can be synthesized by the organism's genome is called

(A) genome
(B) proteome
(C) nucleome
(D) ribosome

166 When separating proteins using gel filtration chromatography, the first proteins to be eluted will be _____.

(A) smallest
(B) largest
(C) negatively charged
(D) positively charged

167 Which one of the following is called the third eye of the human body?

(A) Hypothalamus
(B) Pituitary gland
(C) Pineal Gland
(D) Brainstem

168 The outer membrane of Gram-negative cells is more permeable than the plasma membrane because

(A) LPS is larger than most membrane phospholipids.
(B) lipoproteins stretch the outer membrane.
(C) porin proteins establish holes in the outer membrane.
(D) the core polysaccharide spans the lipid bilayer.

169 The process in which organic matter is decomposed to release simpler, inorganic compounds.

(A) Ammonification
(B) Nitrogen fixation
(C) Mineralization
(D) Immobilization

170 Cell walls of Eukaryotes and Archaea never contain

(A) Peptidoglycan
(B) Cellulose
(C) Chitin
(D) Glycoprotein

171 Segmented RNA is observed in

(A) Rabies virus
(B) Influenza virus
(C) Coxsackie B virus
(D) HIV

172 A(n) _____ classification system arranges organisms into groups whose members share many characteristics and reflects as much as possible the biological nature of organisms.

(A) artificial
(B) natural
(C) phylogenetic
(D) molecular

173 Which of the following substances can sterilize?

(A) Alcohol
(B) Cetylpyridinium chloride
(C) Ethylene oxide
(D) Chlorine

174 Actinomycetes form spores that are

(A) asexual
(B) are used for sexual reproduction
(C) both asexual and sexual
(D) they do not form spores

175 Which of the following is the last to occur after the binding of a sea urchin sperm to an egg?

(A) Increase in cytosolic pH
(B) Increase in calcium concentration
(C) Activation of protein synthesis
(D) Initiation of mRNA synthesis

176 SNARE proteins are found in the membranes of all of the following compartments EXCEPT

(A) Mitochondria
(B) Golgi complex
(C) Early endosome
(D) Endoplasmic reticulum

177 Artificially acquired passive immunity involves

(A) vaccination with attenuated virus or bacteria
(B) the transfer of antibodies, as from a mother to her foetus
(C) antibody formation as a result of exposure to antigens in the environment
(D) injection of preformed antibodies such as Immunoglobulin

178 The commonality between CoV-2 and Dengue virus infection

(A) Disease symptoms
(B) Duration of infection
(C) Nature of genome
(D) Mode of infection

179 DNA amount can be extracted double

(A) Between prophase and anaphase
(B) Between anaphase and telophase
(C) During M phase
(D) Between G1 and G2 phases

180 Phytochrome is involved in

(A) Phototropism
(B) Photorespiration
(C) Photoperiodism
(D) Geotropism.

181 'The law of limiting factors' was proposed by

(A) Leibig
(B) Hatch and Slack
(C) Blackman
(D) Arnon

182 Northern blot technique is use for studies on

(A) DNA
(B) RNA
(C) Protein
(D) Ribosomes

183 What is full form of PCA?

(A) Principal Component analysis
(B) Protein clone art
(C) Primer component analysis
(D) Principal cluster algorithm

184 DNA differs from RNA in

(A) N bases
(B) Sugar and phosphate
(C) Base and sugar
(D) Base, phosphate and sugar

185 Which is not true for TCA cycle

(A) Takes place in mitochondrial matrix
(B) Single largest source of direct ATP
(C) There is formation of NADPH and FADH
(D) Is linked to glycolysis via pyruvate

186 The plant that cannot be generally multiplied by seeds

(A) Banana
(B) Apple
(C) Papaya
(D) Mango

187 Fumarase involved in the conversion of malic acid to fumaric acid is the example of _____

(A) Isomerases.
(B) Transferases.
(C) Ligases.
(D) Lyases.

188 The process of modification of exogenous compounds by plant cells is called _____

(A) Biotransformation
(B) Bioconversion
(C) Both A and B
(D) Biophyto modification

189 Enucleated protoplast is called _____

(A) Cytoplast
(B) Cybrid
(C) Tonoplast
(D) Duplast

190 Ethylene production is inhibited by antisense gene_____.

(A) Glyphoshate
(B) ACC synthase
(C) ACC synthetase
(D) Lyase

191 The process of _____involves the introduction of a gene into a cell where it exchanges places with its counterpart in the host cell.

(A) Knockout technology
(B) Gene targeting
(C) Transgenic technology
(D) Recombinant DNA technology

192 Which is the year of the emergence of molecular biology?

(A) 1950s
(B) 1930s
(C) 1940s
(D) 1920s

193 Main carbon source in PTC is

(A) Sucrose
(B) Mannose
(C) Glucose
(D) Lactose

194 Cellulolysin is obtained from

(A) Trichoderma viride
(B) Aspergillus species
(C) Irpex lactus
(D) Rhizopus species

195 Which one of the following is not used as cryoprotectants?

(A) Glycerol.
(B) DMSO.
(C) Ethylene.
(D) PEG

196 What would the generally expected effect on the PCR reaction be of adjustments that increase the temperature of the annealing phase and the length of the elongation phase?

(A) Precision and yield will be reduced
(B) Precision will be reduced, but yield will be increased
(C) Precision will be increased, but yield will be reduced
(D) Precision and yield will be increased

197 Disarming of Ti plasmid is

(A) Removal of the Virulence region
(B) Removal of the 25 base pair repeats
(C) Removal of the T-DNA
(D) Removal of the Host specificity region

198 Specific biomolecules which show easily detectable differences among different strains of a species or among different species is called as

(A) Molecular Scissors
(B) DNA fingerprinting
(C) Molecular markers
(D) RFLP

199 Microbial strains that can grow on minimal medium are called -

(A) Autotrophs
(B) Auxotrophs
(C) Prototrophs
(D) Minitrophs

200 Which of the following is not an antibacterial drug?

(A) Amphotericin B
(B) Gentamycin
(C) Ampicillin
(D) Penicillin

Technical Assistant

Provisional Answer Key

Q.No	Option		Q.No	Option		Q.No	Option		Q.No	Option
1	B		51	C		101	A		151	B
2	B		52	A		102	A		152	A
3	A		53	A		103	A		153	A
4	D		54	A		104	C		154	D
5	D		55	C		105	A		155	D
6	A		56	A		106	D		156	B
7	A		57	A		107	A		157	B
8	D		58	B		108	B		158	C
9	C		59	D		109	C		159	C
10	C		60	D		110	D		160	A
11	A		61	A		111	A		161	B
12	C		62	A		112	A		162	B
13	C		63	A		113	B		163	B
14	B		64	C		114	D		164	A
15	A		65	B		115	B		165	B
16	C		66	C		116	D		166	B
17	B		67	D		117	D		167	B
18	C		68	A		118	D		168	C
19	D		69	A		119	C		169	C
20	A		70	A		120	C		170	A
21	A		71	B		121	A		171	B
22	A		72	C		122	C		172	D
23	C		73	C		123	B		173	C
24	D		74	D		124	B		174	A
25	B		75	C		125	C		175	D
26	B		76	A		126	B		176	A
27	C		77	B		127	B		177	D
28	D		78	A		128	A		178	C
29	B		79	A		129	D		179	D
30	D		80	A		130	A		180	C
31	C		81	C		131	C		181	C
32	C		82	A		132	D		182	B
33	D		83	B		133	B		183	A
34	D		84	A		134	D		184	C
35	B		85	A		135	B		185	D
36	C		86	C		136	C		186	A
37	D		87	C		137	D		187	A
38	C		88	B		138	B		188	C
39	D		89	D		139	C		189	C
40	A		90	C		140	C		190	B
41	C		91	A		141	B		191	B
42	B		92	B		142	A		192	B
43	A		93	B		143	B		193	A
44	B		94	A		144	B		194	A
45	D		95	D		145	A		195	D
46	B		96	B		146	C		196	B
47	A		97	A		147	A		197	C
48	B		98	C		148	C		198	C
49	D		99	B		149	A		199	C
50	B		100	C		150	C		200	A