		PARTICULARS TO BE FILLED IN BY THE CANDIDATE	
1220352		Name of the Candidate	
		Roll Number	
Paper Code	TDGN/122	Application Number	
		Name of the Centre	
Question Booklet Number	1220352	Centre Code	
		Date of the Test	
Question Paper Series	B	Signature of the Candidate	

Maximum Marks: 100 Test Duration: 02 hours

INSTRUCTIONS

- Complete all entries on the cover page and put your signature in the space provided.
- Use only Ball Point Pen (black / blue) for making entries in the Question Booklet and the OMR Answer Sheet.

1. The Question Booklet consists of **14** pages and contains **100** multiple choice questions (MCQs). Count the number of pages and questions before attempting the questions. Discrepancy, if any, must immediately be brought to the notice of the Invigilator.
2. The Test duration as specified above shall be reckoned from the moment of distribution of the Question Booklets.
3. Blank space in the Question Booklet may be used for rough work.
4. Each MCQ is followed by four alternative answers. Select only one answer, which you consider as the most appropriate. Shade the relevant circle against the corresponding question number on the OMR Answer Sheet. Selecting more than one answer for a question, even if one of the selected answers is correct, would result in its being treated as an incorrect answer.
5. Answers for MCQs should ONLY be marked on the OMR Answer Sheet. No answer should be written/marked on the Question Booklet.
6. **The candidate is required to separate the original OMR Answer Sheet and its carbonless copy at the perforation carefully after the Admission Test. He / She shall hand over the original OMR Answer Sheet and Admit Card to the Invigilator before leaving his/her seat and take with him/her the carbonless copy of the OMR Answer Sheet and the Question Booklet.**
7. **Failure to handover the original OMR Answer Sheet will lead to cancellation of the candidature.**

1. Who was the author of the famous ancient Indian work 'Meghaduta' ?
   (a) Kalidasa (b) Banabhatta
   (c) Vedvyasa (d) Kautilya

2. Which one among the following is the largest inhabited riverine island in the world ?
   (a) Bellur (b) Dehang
   (c) Tethy (d) Majuli

3. The Governor of Reserve Bank of India who resigned in December 2018 is :
   (a) Harthik Patel (b) Urjit Patel
   (c) Uma Kant Desai (d) RaghuramRajan

4. River Godavari falls into the
   (a) Arabian Sea (b) Bay of Bengal
   (c) Gulf of Khambat (d) Rann of Kutch

5. Which of the following countries hosted the first Asian Games held in the year 1951 ?
   (a) Japan (b) India
   (c) Philippines (d) Indonesia

6. Cauveri Water Management Authority was constituted to address water dispute amongst states of
   (a) Tamilnadu, Andhra Pradesh, Karnataka, Poducherry (b) Maharastra, Tamilnadu, Karnataka, Kerala
   (c) Tamilnadu, Maharastra, Karnataka, Andhra Pradesh (d) Tamilnadu, Karnataka, Kerala and Poducherry

7. Which of the following is NOT correctly matched ?
   (a) NASA – USA (b) ISRO – Russia
   (c) UNO – New York (d) WHO – Geneva

8. Who was the first ruler of Khalji dynasty ?
   (a) Balban (b) Mohammad Ghori
   (c) Alauddin Khaiji (d) JalaluddinFiruz Khalji

9. Ayodhaya is situated on the banks of the river
   (a) Gomti (b) Ghaghra
   (c) Saryu (d) Ganga

10. Chaudhary Charan Singh International Airport is in :
   (a) Kolkata (b) Lucknow
   (c) Guwahati (d) Goa

P.T.O.

11. Which of the following is not an official language of UNO ?
(a) Spanish (b) Chinese
(c) Japanese (d) Russian

12. National Rural Livelihood Mission (NRLM) was launched in the year ?
(a) 1978-79 (b) 1979-80
(c) 2011-12 (d) 1981-82

13. Who was the author of 'Akbar-nama' ?
(a) Shahjahan (b) AbulFazl
(c) Samudragupta (d) Alauddin Khilji

14. Federalism in India was introduced by :
(a) Government of India Act 1909 (b) Government of India Act 1919
(c) Government of India Act 1935 (d) Pitts Act

15. The 'Kinnerasani Wildlife Sanctuary' is located in the Indian state of
(a) Tamil Nadu (b) Telangana
(c) Kerala (d) Karnataka

16. A satellite A of mass m is at a distance of r from the surface of the earth. Another satellite B of mass 2m is at a distance of 2r from the earth's centre. Their time periods are in the ratio of :
(a) 1 : 2 (b) 1 : 16
(c) 1 : 32 (d) $1 : 2\sqrt{2}$

17. Photo-current depends upon
(a) number of electrons, frequency and the photometal (b) the intensity of incident radiation
(c) intensity of incident radiation, its frequency and the type of photometal (d) the frequency of the incident radiation

18. Two linear SHMs of equal amplitude 'a' and frequencies 'ω' and '2ω' are impressed on a particle along x and y axes respectively. For a initial phase difference of $\frac{\pi}{2}$, the resultant path followed by particle is
(a) Parabola with vertex (0, a) and latus $\frac{a}{\sqrt{2}}$ (b) Farabol with vertex (0, –a) and latus $\frac{a}{\sqrt{2}}$
(c) Ellipse with vertex (0, a) (d) Ellipse with vertex (0, –a)

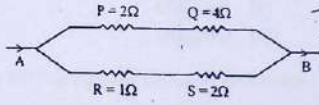
19. In an electomagnetic wave, the amplitudes of electric and magnetic fields are 250 V/m and 0.125 A/m, respectively. The maximum energy flow is
(a) 31.25 W/m^2 (b) 52.78 W/m^2
(c) 70.58 W/m^2 (d) 100.8 W/m^2

20. In a series LCR circuit, the voltage across an inductor, a capacitor and a resistor are 15V, 15V and 30V respectively. The phase difference between the applied voltage and current in the circuit will be
(a) 0° (b) 30°
(c) 60° (d) 90°

21. A ball of 0.1 kg makes an elastic head on collision with a ball of unknown mass that is initially at rest. If the 0.1 kg ball rebounds at one third of its original speed, then the mass of the other ball will be
(a) 0.1 kg (b) 02. kg
(c) 0.3 kg (d) 0.4 kg

22. The dimensions of $\frac{1}{2}\frac{B^2}{\mu_0}$, where symbols have their usual meanings are
(a) $M^1L^1T^{-1}$ (b) $M^1L^{-1}T^{-2}$
(c) $M^1L^{-2}T^{-1}$ (d) $M^1L^2T^{-2}$

23. In the following circuit, which of the four resistance generates greatest amount of heat when a current flows from A to B ?



(a) P (b) Q
(c) R (d) S

24. A ship moves from freshwater to sea water. If the density of seawater is 3% more than that of freshwater, then the buoyant force acting on the ship in seawater will
(a) increase by 3% (b) increase by 1.5%
(c) increase by 6% (d) remain unchanged

25. A balloon has a mass of 10g in air. The air escapes from the balloon at a uniform rate with a velocity of 5 cm/s and the balloon shrinks completely in 2.5 s. The average force acting the balloon would be
(a) 10 dyne (b) 20 dyne
(c) 30 dyne (d) 40 dyne

26. A subshell with $n = 4$ and $l = 3$ will have maximum number of electrons equal to
(a) 10 (b) 12
(c) 14 (d) 16

27. Which of the following is correct for adiabatic reversible process
(a) $TP^{\gamma-1} = \text{Constant}$ (b) $TP^{\gamma} = \text{Constant}$
(c) $TP^{\frac{1}{\gamma}} = \text{Constant}$ (d) $TP^{\frac{1-\gamma}{\gamma}} = \text{Constant}$

28. What is the shortest and largest wave length of Lyman series respectively
(a) 91.2 nm and 121.5 nm (b) 121.5 nm and 102.6 nm
(c) 91.2 nm and 102.6 nm (d) 102.6 nm and 121.5 nm

29. Which of the following shows Schottky as well as Frenkeldefects ?
(a) AgCl (b) AgI
(c) CsCl (d) AgBr

30. Which is not found in pure form

(a) $InCl_3$
(b) $TiCl_3$
(c) $FeCl_3$
(d) $SnCl_4$

31. Among $Ni(CO)_4$, $Cr(CO)_6$ and $[Ni(CN)_4]^{2-}$ hybridization of central atom

(a) dsp^2, sp^3d^2 and dsp^2
(b) sp^3, sp^3d^2 and dsp^2
(c) sp_3, d^2sp^3 and dsp^2
(d) sp^3, d^2sp^3 and sp^3

32. Passing PH_3 gas through Mercuric Chloride solution produces

(a) Hg
(b) Hg_3P_2
(c) Hg_3PO_4
(d) H_2

33. A β-hydroxycarbonyl compound is obtained by the action of NaOH on

(a) R_3CCHO
(b) C_6H_5CHO
(c) CH_3CHO
(d) HCHO

34. A non-reducing sugar among the following is

(a) Glucose
(b) Sucrose
(c) Galactose
(d) Mannose

35. The drug  is used as

(a) Antacid
(b) Analgesic
(c) Antimicrobial
(d) Antiseptic

36. If $A=\begin{bmatrix}0 & 1 & -1\\ 2 & 1 & 3\\ 3 & 2 & 1\end{bmatrix}$, then $(A\ (adj\ A)\ A^{-1})\ A$ is equal to :

(a) $2\begin{bmatrix}3 & 0 & 0\\ 0 & 3 & 0\\ 0 & 0 & 3\end{bmatrix}$
(b) $\begin{bmatrix}-6 & 0 & 0\\ 0 & -6 & 0\\ 0 & 0 & -6\end{bmatrix}$
(c) $\begin{bmatrix}1 & 0 & 0\\ 0 & 1 & 0\\ 0 & 0 & 1\end{bmatrix}$
(d) None of these

37. If $A=\begin{bmatrix}i & 0\\ 0 & i\end{bmatrix}$, $n \in N$, then A^{4n} is equal to :

(a) $\begin{bmatrix}0 & i\\ i & 0\end{bmatrix}$
(b) $\begin{bmatrix}0 & 0\\ 0 & 0\end{bmatrix}$
(c) $\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$
(d) $\begin{bmatrix}1 & i\\ i & 1\end{bmatrix}$

38. Let R be a relation from a set X to a set Y, then

(a) $R = X \cap Y$
(b) $R = X \cup Y$
(c) $R \subseteq X \times Y$
(d) $R \subseteq Y \times X$

39. If $\sin x + \operatorname{cosec} x = 2$, then the value of $\sin^{10}x + \operatorname{cosec}^{10}x$, is

(a) 2
(b) 2^3
(c) 2^5
(d) 1

40. If $\int \sqrt{\frac{x^4}{x^5+x^6}}\,dx = g(x) + c$, then $g(x) =$

(a) $\frac{1}{3}log|x^3+\sqrt{a^6+x^6}|$
(b) $\frac{1}{3}\tan^{-1}\left(\frac{x^3+a^3}{3}\right)$
(c) $log\left(x^2+\sqrt{x^3+a^3}\right)$
(d) $\frac{2}{3}\tan^{-1}\left(\frac{x^2+a^2}{a^2}\right)$

41. The four lines $ax \pm by \pm c = 0$ enclose a rhombus whose area is

(a) $\frac{c^2}{ab}$
(b) $\frac{a^2}{bc}$
(c) $\frac{b^2}{ac}$
(d) $\frac{2c^2}{ab}$

42. The coordinates of a point on the parabola $y^2 = 8x$ whose focal distance is 4 are

(a) $\left(\frac{1}{2}, \pm 2\right)$
(b) $(1, \pm 2\sqrt{2})$
(c) $(2, \pm 4)$
(d) $(1, \pm 4)$

43. Let A, B and C be the three events associated with some experiment E. The statement $(A \cap \bar{B} \cap \bar{C}) \cup (\bar{A} \cap B \cap \bar{C}) \cup (\bar{A} \cap \bar{B} \cap C)$ is equal to :

(a) at least one of the events occurs
(b) at most one of the events occurs
(c) exactly one of the event occurs
(d) none of these

44. The differential equation $\frac{dy}{dx} = \frac{x}{\sqrt{1-x^2}}$ determines a family of circles with

(a) fixed radius 1 and variable centre along the y-axis
(b) variable radii and fixed centre at (0,1)
(c) variable radii and a fixed centre at (0, −1)
(d) fixed radius 1 and variable centre along the x-axis

45. $f(x) = \sin x + \cos 2x\ (x > 0)$ has minima for x =

(a) $\frac{n\pi}{2}$
(b) $\frac{3(n+1)\pi}{2}$
(c) $\frac{(2n+1)\pi}{2}$
(d) none of these

46. The enzyme nitrogenase that catalyzes the conversion of atmospheric nitrogen to ammonia is extremely sensitive to :

(a) Ammonia
(b) Hydrogen
(c) Oxygen
(d) Nitrogen

47. Water potential of pure water at standard temperature is equal to
(a) 10 (b) 20
(c) Zero (d) Below Zero

48. In C_4 cycle initial reduction process of CO_2 takes place in
(a) Mesophyll cells (b) Bundle sheath cells
(c) Palisade parenchyma (d) Cytosol

49. An immunosupperessant agent used in organ transplants is
(a) Penicillin (b) Gentamycin
(c) Cyclosporin A (d) Sporo-pollenin

50. Apophysis of 'Moss' is :
(a) Lower part of capsule (b) Part of Peristome
(c) Apical part of capsule (d) Sterile filaments in male receptacle

51. An individual having both the alleles of a contrasting character is said to be
(a) Homozygous (b) Heterozygous
(c) Dioecious (d) Monoecious

52. Which of the following depicts dihybridratio ?
(a) 3 : 1 (b) 9 : 3 : 3 : 1
(c) 3 : 4 (d) 9 : 4 : 4 : 2

53. In a cross from AaBB × aaBb, the genotypes AaBB, AaBb, aaBB and aaBb will be obtained in which of the following ratios ?
(a) 2 : 4 : 1 : 2 (b) 2 : 2 : 2 : 2
(c) 1 : 1 : 1 : 1 (d) 1 : 2 : 2 : 1

54. Flow of genetic information from DNA to mRNA is
(a) Transcription (b) Translation
(c) Reverse transcription (d) Transition

55. Quiescent centre in plants is found at
(a) Root tip (b) Shoot tip
(c) Cambium (d) Leaf tip

56. Which strain of Bacillus is used to produce insect resistant Btcotton ?
(a) Bacillusthermophilus (b) Bacillusthermoruber
(c) Bacillusthioparans (d) Bacillusthuringiensis

57. Chloronhyll-bearing , simple, thalloid, autotrophic, largely aquatic organisms are
(a) Bryophytes (b) Algae
(c) Protista (d) Pteridophytes

AaBB × aaBb

58. Which among the following is used as food supplement by space travelers ?
(a) Spirulina (b) Ectocarpus
(c) Laminaria (d) Spirogyra

59. Which among the following are commonly called as sac fungi ?
(a) Ascomycetes (b) Phycomycetes
(c) Basidiomycetes (d) Deuteromycetes

60. *Rhizopus* commonly called as 'bread mold' belongs to
(a) Phycomycetes (b) Ascomycetes
(c) Basidiomycetes (d) Deuteromycetes

61. Deoxyribose and ribose sugars differ in a oxygen atom at which position of the carbon ?
(a) 2′ (b) 3′
(c) 5′ (d) 1′

62. Which of the following is NOT an essential aminoacid for humans ?
(a) Histidine (b) Lysine
(c) Alanine (d) Tryptophan

63. A true species consists of a population
(a) Sharing the same niche (b) Interbreeding
(c) Feeding over the same food (d) Reproductively isolated

64. *Collectotrichum* belongs to the family
(a) Basidiomycetes (b) Phycomycetes
(c) Deuteromycetes (d) Ascomycetes

65. The girth of the stem increases due to the activity of
(a) Lateral meristem (b) Intercalary meristem
(c) Apical meristem (d) Nodal meristem

66. Which of the following cell types are deficient in the enzyme HGPRT ?
(a) Myeloma cells (b) Splenocytes
(c) Both (a) and (b) above (d) Hybridoma cells

67. Which of these is a water soluble, 17 amino acid peptide hormone of the digestive system?
(a) Secretin (b) Gastrin
(c) CCK (d) GIP

68. In sickle cell anaemiawich chain of haemoglobin is affected ?
(a) α-chain (b) β-chain
(c) δ-chain (d) γ-chain

69. The canal system of sponges do not help in .....
(a) Locomotion (b) Nutrition
(c) Respiration (d) Excretion

70. Which of the following immunoglobulins is a pentamer with maximum number of diasaccharide units associated with μ-chain?
(a) IgG_3 (b) IgA
(c) IgM (d) IgE

71. The trigger for ovulation is the sudden increase in the level of
(a) estrogen (b) progesterone
(c) FSH (d) LH

72. Which of the following unwinds DNA and breaks hydrogen bonds ?
(a) DNA ligase (b) DNA helicase
(c) DNA topoisomerase (d) DNA pol δ

73. The interspecific interaction in which one species is benefitted whereas the other is neither benefitted nor harmed, is called
(a) commensalism (b) ammensalism
(c) mimicry (d) symbiosis

74. Kohler and Milestein developed which one of the following techniques?
(a) RIA (b) Hybridoma
(c) Double immunodiffusion (d) Elispot

75. Animals may be classified on the basis of the removal of nitrogenous wastes. Alligators are:
(a) Ammonotelic (b) Ureotelic
(c) Uricotelic (d) Aminotelic

76. Parotid salivary glands are
(a) Compound sacculargland (b) Branched simple saccular gland
(c) Tubulo-alveolar gland (d) Compound tubular gland

77. The edges of the infundibulum possess finger like projections called
(a) Microvilli (b) Fimbriae
(c) Chorionic villi (d) Free villi

78. Complement which causes chemotaxis and mast cell activation is
(a) C5a (b) C5b
(c) C6 (d) C7

79. The effective filteration pressure in the kidneys of healthy man is nearest to
(a) 45 mm of Hg (b) 10 mm of Hg
(c) 70 mm of Hg (d) 120 mm of Hg

80. The three dimensional structure of t-RNA is
(a) Twisted L-shape (b) Clover leaf shape
(c) T shape (d) Rose shape

81. In a normal man, the trachea divides into right and left primary bronchi, approximately at the level of
(a) 7th cervical vertebra (b) 5th thoracic vertebra
(c) 1st Lumbar vertebra (d) 12th thoracic vertebra

82. The antibody mainly associated with allergic manifestation is
(a) IgE (b) IgG
(c) IgA (d) IgD

83. During buccal respiration in frog
(a) Nostrils remain closed and glottis remain open (b) Nostrils remain open and glottis remain closed
(c) Both nostrils and glottis remain closed (d) Both nostrils and glottis remain open

84. The protein which enables transport of glucose into cells is called
(a) Glut-4 (b) Receptor
(c) Collagen (d) Glucagon

85. Protists are
(a) Unicellular prokaryotes (b) Unicellular eukaryotes
(c) Multi-cellular prokaryotes (d) Multi-cellular eukaryotes

86. Fill in the blanks with a suitable relative pronoun.
Man is the only animal ..... can talk.
(a) which (b) that
(c) such (d) whom

87. Fill in the blank with an appropriate modal.
He worked hard lest he .....fail again.
(a) would (b) should
(c) need (d) ought to

88. Fill in the correct preposition.
It is important to abstain .....alcohol.
(a) from (b) by
(c) with (d) of

89. Find the odd one in the given list
(a) prolapse (b) andoid
(c) haemorrhoids (d) leotard

90. A baby kangaroo is called .....
(a) Joey
(c) Kid
(b) Calf
(d) Pupa

91. To take the bull by the horns' means .....
(a) Face challenges boldly
(c) raising voice against system
(b) coercing others by fear
(d) attacking enemy

92. Fill in the correct preposition.
He is ..... the committee
(a) on
(c) with
(b) in
(d) besides

93. What does uncanny mean.
(a) Strange
(c) Dirty
(b) Unexpected
(d) Horrific

94. "Man proposes, God disposes". This statement is an example of .....
(a) Hyperbole
(c) Epigram
(b) Antithesis
(d) Pun

95. Choose the correct spelling.
(a) Stethoscope
(c) Steythoscope
(b) Staythescope
(d) Stithoscope

Instruction for Q96-99 : Read the paragraph carefully and answer the questions that follow :

Padmashri S. Natarajan started his career as a science teacher in St. Gabriels' High School, Broadway, Chennai. He was a devoted teacher, much loved by his students, colleagues & the Headmasters. His involvement in Teacher's Union in no way affected his school duties. In a rarest of rare happenings, the catholic management made a non-catholic S. Natarajan, the headmaster in the twilight of his career. It was a recognition & appreciation of the dedication of Natarajan to the school.

96. What is the paragraph about ?
(a) Political life of S. Natarajan
(c) Professional life of S. Natarajan
(b) Personal life of S. Natarajan
(d) Catholic Management

97. Give the meaning of the phrase 'twilight of his career'.
(a) Peak of his career
(c) Start of his career
(b) Saturation point of his career
(d) The time of decline of his career

98. Which of the following statements is incorrect.
(a) Padmashri S. Natarajan was science teacher
(c) He was a catholic priest
(b) He was involved in Teacher's Union
(d) He was appreciated for his hard work.

99. Give the adjective form of the word appreciation
(a) Appreciable
(c) Appreciation
(b) Appreciate
(d) Appreciated

100. Select the a verb form of the underlined word(s).
Write with neatness.
(a) neatly
(c) neatnessly
(b) natily
(d) neat

ALIGARH MUSLIM UNIVERSITY, ALIGARH

Answer Key (DPGN) Admission Test 2020-21

SERIES: B

Q.No.	Answer
1	A
2	D
3	B
4	B
5	B
6	D
7	B
8	D
9	C
10	B
11	C
12	C
13	B
14	C
15	B
16	D
17	C
18	A
19	A
20	A
21	B
22	B
23	D
24	D
25	B
26	C
27	D
28	A
29	D
30	B
31	C
32	B
33	C
34	B
35	A
36	A
37	C
38	C
39	A
40	C

Q.No.	Answer
41	A
42	C
43	A
44	D
45	C
46	C
47	C
48	B
49	C
50	A
51	C
52	B
53	C
54	A
55	A
56	D
57	B
58	A
59	A
60	A
61	A
62	C
63	D
64	C
65	A
66	A
67	B
68	B
69	A
70	C
71	D
72	B
73	A
74	B
75	B
76	C
77	B
78	A
79	B
80	A

Q.No.	Answer
81	B
82	A
83	B
84	A
85	B
86	B
87	B
88	A
89	D
90	A
91	A
92	A
93	A
94	B
95	A
96	C
97	D
98	C
99	A
100	A

COORDINATOR
DATED: 14.11.2020