

iQuest Scholarship Cum Admission Test

SAMPLE PAPER
FOR CLASS 12th (MEDICAL)

Test ID :

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Time : 1.5 hrs.

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M. Marks: 360

SYLLABUS & SCHEME		
SUBJECTS	Qs.	SYLLABUS
PHYSICS	22	XII Syllabus
CHEMISTRY	22	XII Syllabus
BIOLOGY (BOTANY + ZOOLOGY)	46	XII Syllabus

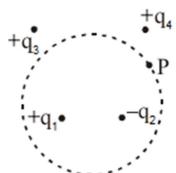
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INSTRUCTIONS TO CANDIDATE

- Each subject in this paper consists of multiple choice questions with only one correct answer. **+4 marks** will be awarded for correct answer and **-1 mark** for wrong answer.
- Please read the instructions given for each question carefully and fill the correct answer against the question numbers on the answer sheet in the respective subject.
- **Use blue or black ball point pen to darken the appropriate circle & mark should completely fill the circle.**
- The Question paper contains blank spaces for your rough work. No additional sheet will be provided for rough work.
- Blank papers, Clipboards, Log Tables, Slide rule, Calculators, Cellular phones, Pagers and Electronic gadgets in any form are not allowed.
- Write your Name, Student ID in the block at the top of the Answer Sheet. Also write your Name & Student ID in the space provided on this cover page of question paper.

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Name: _____ Student ID _____

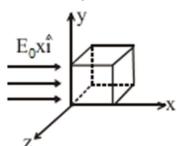
PHYSICS

19. Consider the Gaussian surface that surrounds part of the charge distribution shown in fig. Then the contribution to the electric field E at point P arise from charges :



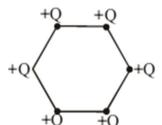
(A) q_1 and q_2 only (B) q_3 and q_2 only
(C) q_1 , q_2 , q_3 and q_4 only (D) none of these

20. Calculate the flux through the cube shown in fig. for $\vec{E} = E_0 \hat{x}$: (side of cube is a)



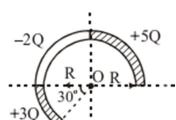
(A) $E_0 a^2$ (B) $E_0 a^3$
 (C) $E_0 a^4$ (D) Zero

21. The work done required to put the six charges together at the corners of a regular hexagon is :



(A) $\frac{6kQ^2}{a} + \frac{3kQ^2}{2a}$ (B) $\frac{6kQ^2}{a} + \frac{6kQ^2}{\sqrt{3}a}$
 (C) $\frac{6kQ^2}{a} + \frac{6kQ^2}{\sqrt{3}a} + \frac{3kQ^2}{2a}$ (D) $\frac{6kQ^2}{a} + \frac{3kQ^2}{\sqrt{3}a} + \frac{6kQ^2}{2a}$

22. An arc of radius R is shown in the figure, find the potential at its centre :



(A) $\frac{6kQ}{R}$ (B) $\frac{5kQ}{R}$
 (C) $\frac{\sqrt{3}kQ}{R}$ (D) $\frac{\sqrt{2}kQ}{R}$

CHEMISTRY

23. Match the oxide given in column I with its property given in column II.

Column I	Column II
(i) Na_2O	A. Neutral
(ii) Al_2O_3	B. Basic
(iii) N_2O	C. Acidic
(iv) Cl_2O_7	D. Amphoteric

Which of the following options has all correct pairs?

(A) (i)-B, (ii)-A, (iii)-D, (B) (i)-C, (ii)-B, (iii)-A,
(iv)-C (iv)-D
(C) (i)-A, (ii)-D, (iii)-B, (D) (i)-B, (ii)-D, (iii)-A,
(iv)-C (iv)-C

24. The correct order of increasing bond length of C – H, C – O, C – C and C = C is

(A) C – H < C = C < C – C – O < C – C
(B) C – C < C = C < C – O < C – H
(C) C – O < C – H < C – C < C = C
(D) C – H < C – O < C – C < C = C

25. Match List – I with List – II

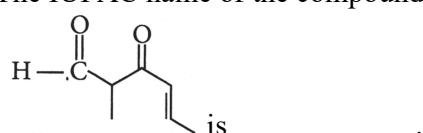
List I		List II	
(A)	PCl_5	(i)	Square pyramidal
(B)	SF_6	(ii)	Trigonal planar
(C)	BrF_5	(iii)	Octahedral
(D)	BF_3	(iv)	Trigonal bipyramidal

Choose the correct answer from the options given below :

(A) (A) – (iv), (B) – (iii), (B) (A) – (iv), (B) – (iii),
(C) – (ii), (D) – (i) (C) – (i), (D) – (ii)
(C) (A) – (ii), (B) – (iii), (D) (A) – (iii), (B) – (i),
(C) – (iv), (D) – (i) (C) – (iv), (D) – (ii)

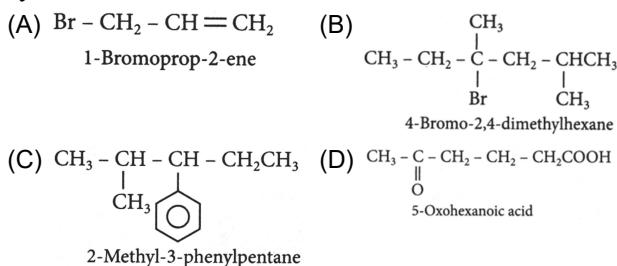
26. Which of the following is paramagnetic?

27. The IUPAC name of the compound



(A) 5-formylhex-2-en-3- (B) 5-methyl-4-oxohex-
one 2-en-5-al
(C) 3-keto-2-methylhex- (D) 3-keto-2-methylhex-
5-enal 4-enal

28. Which nomenclature is not according to IUPAC system?



29. Removal of 2nd electron for an element is always :

(A) Endothermic (B) Endothermic for Mg, Be, N
(C) Exothermic for Mg, (D) Depends of electronic Be, N and Noble gases

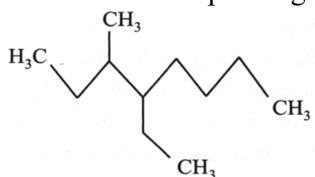
30. The formation of oxide ion, $\text{O}^{2-}(g)$ requires first an exothermic and then an endothermic step as shown below :



This is because :

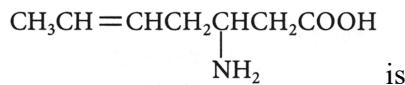
(A) oxygen is more (B) oxygen has high electronegative electron affinity
(C) O^- ion will tend to (D) O^- has comparatively resist the addition of larger size than another electron oxygen atom

31. Name of the compound given below is



(A) 4-ethyl-3-methyloctane (B) 3-methyl-4-ethyloctane
(C) 2,3-diethylheptane (D) 5-ethyl-6-methyloctane

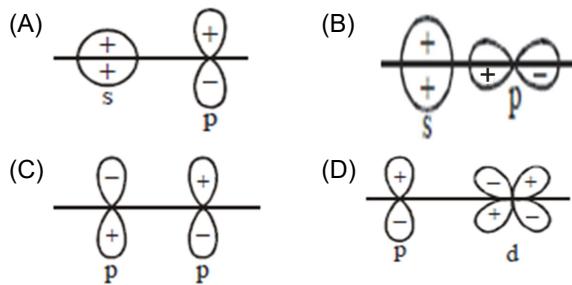
32. The IUPAC name for



is

(A) 3-amino-5-heptenoic (B) β -amino- δ -heptenoic acid
(C) 5-amino-2-heptenoic (D) 5-amino-hex-2-ene carboxylic acid

33. Which of the following leads to bonding?



34. Which of the following has largest bond angle.

(A) H_2O (B) F_2O
(C) Cl_2O (D) H_2S

35. The most stable carbocation, among the following is

(A) $(\text{CH}_3)_3\text{C}^+\text{CH}-\text{CH}_3$ (B) $\text{CH}_3-\text{CH}_2-\overset{+}{\text{C}}\text{H}-\text{CH}_2-\text{CH}_3$
(C) $\text{CH}_3-\overset{+}{\text{C}}\text{H}-\text{CH}_2-\text{CH}_2-\text{CH}_3$ (D) $\text{CH}_3-\text{CH}_2-\overset{+}{\text{C}}\text{H}_2$

36. C_2H_2 is isostructural with :

(A) H_2O_2 (B) NO_2
(C) SnCl_2 (D) CO_2

37. According to VSEPR theory which of the following molecules is (are) bent (non-linear)?

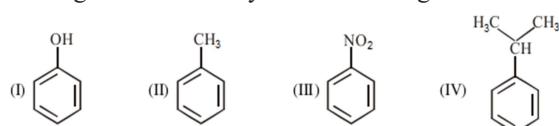
I. CO_2 II. C_2H_2 III. O_3 IV. BeCl_2 V. KrF_2

(A) All of these (B) III, IV
(C) III, IV, V (D) Only III

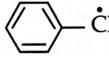
38. Which of the following pair of species have identical shapes?

(A) NO_2^+ and NO_2^- (B) PCl_5 and BrF_5
(C) XeF_4 and ICl_4^- (D) TeCl_4 and XeO_4

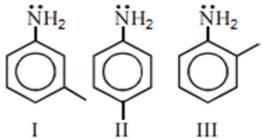
39. Which of the following order is correct for decreasing electron density in benzene ring



(A) (I) > (IV) > (II) > (III) (B) (I) > (III) > (II) > (IV)
(C) (IV) > (II) > (I) > (III) (D) (I) > (II) > (IV) > (III)

40. The radical,  is aromatic because it has
 (A) 7 *p*-orbitals and 7 (B) 6 *p*-orbitals and 7
 unpaired electrons unpaired electrons
 (C) 6 *p*-orbitals and 6 (D) 7 *p*-orbitals and 6
 unpaired electrons unpaired electrons

41. Choose the correct order of basic strength?

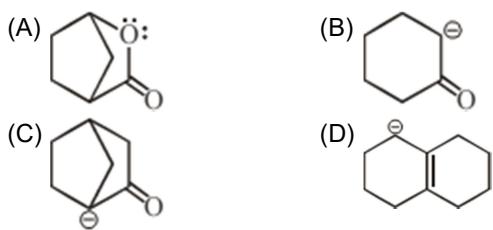


(A) III > II > I (B) III > I > II
 (C) II > I > III (D) I > II > III

42. Which of the following has strong *+I* effect?

(A) O^\ominus (B) $-\text{Et}$
 (C) $-\text{CH}_3$ (D) $-\text{NH}-\text{CH}_3$

43. Which of the following compound is not resonance stabilized?



44. Dipole moment of NF_3 is smaller than :-

(A) NH_3 (B) CO_2
 (C) BF_3 (D) CCl_4

BIOLOGY

45. Genetic variations affect the production of the drug reserpine in the medicinal plant *Rauvolfia vomitoria* growing in different Himalayan ranges. What kind of diversity does it indicate?
 (A) Species diversity (B) Genetic diversity
 (C) Ecological diversity (D) None of these

46. An American plant which is a troublesome water weed in India is
 (A) Parthenium (B) Typha
 (C) Trapa (D) Eichhornia

47. Fish used in biological control of mosquitos is :
 (A) Hilsa (B) Gambusia
 (C) Pomfret (D) Catla catla

48. Species diversity increases as one proceeds from
 (A) Low altitudes to high (B) Low altitude to high
 altitudes and from low latitude to high high latitudes to low
 latitudes latitudes
 (C) High altitude to low (D) High altitudes to low
 altitudes and from high latitudes to high high latitude to low
 latitudes latitudes

49. Match the following columns –

	Column I		Column II
(i)	Dodo	(a)	Africa
(ii)	Quagga	(b)	Russia
(iii)	Thylacine	(c)	Mauritius
(iv)	Stellar's Sea cow	(d)	Australia

Choose the correct match from following :

(A) (i) - a, (ii) - c, (iii) - b, (B) (i) - d, (ii) - c, (iii) - a, (iv) - d (iv) - b
 (C) (i) - c, (ii) - a, (iii) - b, (D) (i) - c, (ii) - a, (iii) - d, (iv) - d (iv) - b

50. The Extinction of Passenger Pigeon was due to :
 (A) Increased No. of (B) Over exploitation by
 Predatory birds humans
 (C) Non-availability of (D) Bird flu virus
 food Infection

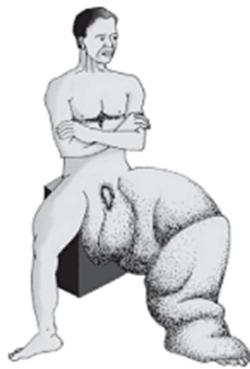
51. Which one of the following cause of biodiversity loss, is because of mutualism?

(A) Habitat fragmentation (B) Over exploitation
 (C) Co-extinctions (D) Alien species
 invasions

52. Which disease showing common symptoms like stomach pain, 39° to 40°C fever, weakness & loss of appetite
 (A) Typhoid (B) Pneumonia
 (C) Common cold (D) Malaria

53. Which bacteria is responsible for the disease Pneumonia in humans ?
 (A) *Streptococcus Pneumoniae* (B) *Haemophilus influenzae*
 (C) Rhino virus (D) Both A and B

54. Diagram showing inflammation in one of the lower limbs due to ?



(A) Epidermophyton (B) Filariasis
(C) Ascariasis (D) Sporozoites

55. Which lymphocyte is mainly infected by HIV.

(A) Cytotoxic Lymphocytes	T-(B) Helper Lymphocytes	T-
(C) Supressor Lymphocytes	T-(D) Memory Lymphocytes	T-

56. Virus infected cells secrete Proteins called

(A) Interlukins (B) Interferons
(C) Monokines (D) Lymphokines

57. How many types of acquired immune responses found in humans

(A) One (B) Two
(C) Five (D) Four

58. When a host is exposed to antigen, antibodies are Produced in the host body this type of immunity is called ?

(A) Passive immunity	(B) Passive Natural immunity
(C) Active immunity	(D) Innate immunity

59. Which antibodies secrete during allergy ?

(A) IgG (B) IgM
(C) IgD (D) IgE

60. Diagnostic test for AIDS is ?

(A) EILSA	(B) Widal test
(C) Tourniquet test	(D) Enzyme immuno linked sorbent assay

61. Smack is chemically ?

(A) Diacetyl morphine (B) Diethyl morphine
(C) Ethyl alcohol (D) 3-4 Diacetylmorphine

62. Which antibodies is responsible for activation of mast cell ?

(A) IgA (B) IgE
(C) IgG (D) IgM

63. MALT contributes how many percentage of total Lymphoid tissues.

(A) 15% (B) 25%
(C) 50% (D) 75%

64. Contact inhibition is the Property of

(A) Carcinoma (B) Sarcoma
(C) Normal cell (D) Malignant tumor

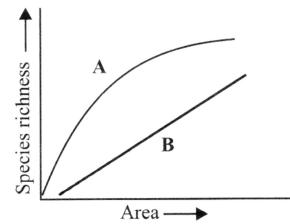
65. Primary Lymphoid organ is

(A) Spleen (B) Tonsils
(C) Bone marrow (D) Pineal Gland

66. Tropics (23.5°N and 23.5°S) have _____ species as compared to temperate or polar regions.

(A) less (B) equal
(C) more (D) none of these

67. Which option correctly describes the equations for curves A and B, in the given graph of species – area relationship?



A	B
(A) $S = CA^z$	$\log S = \log C + Z \log A$
(B) $\log S = \log C + Z \log A$	$S = CA^z$
(C) $\log C = \log S + Z \log A$	$S = CA^z$
(D) $S = CA^z$	$\log C = \log S + Z \log A$

68. Motile zygote of Plasmodium occurs in :

(A) Human RBCs	(B) Human liver
(C) Gut of female Anopheles	(D) Salivary glands of Anopheles

69. Fill in the blanks with the most appropriate option.

The value of z -lies in the range of _____ regardless of the taxonomic group or the region.

(A) 0.1 to 0.2 (B) 0.3 to 0.8
(C) 0.1 to 1.0 (D) 0.6 to 1.8

70. Liver cirrhosis is due to ?
 (A) Chronic use of drugs (B) Chronic use of Alcohol
 (C) Misuse of Atropa (D) Excessive use of balladona

71. What is the correct sequence of enzyme action?
 (A) $E + S \rightleftharpoons EP \rightarrow E + S \rightarrow E + P$ (B) $E + S \rightarrow ES \rightleftharpoons EP \rightleftharpoons E + P$
 (C) $E + P \rightleftharpoons EP \rightleftharpoons ES \rightarrow (D) E + S \rightleftharpoons ES \rightarrow EP \rightarrow E + S \quad E + P$

72. Which metal ion will work as cofactor for the enzyme carboxypeptidase :-
 (A) Mo (B) Zn^{+2}
 (C) Se (D) Fe^{+2}

73. Inhibition of succinic dehydrogenase by malonate is the example of :-
 (A) Non competitive inhibition (B) Allosteric inhibition
 (C) Competitive inhibition (D) Negative feed back inhibition

74.
$$\begin{array}{c} X \quad Y \\ | \quad | \\ C-C \end{array} \rightarrow X-Y + C=C$$

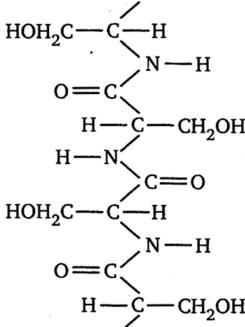
 the above reaction catalyzed by which class of enzymatic Reaction ?
 (A) Ligases (B) Transferases
 (C) Lyases (D) Hydrolases

75. How many species are documented to be extinct in last 500 years by IUCN Red List, 2004?
 (a) 2,000 (b) 87
 (c) 567 (d) 784

76. The protein structure that gives a 3-D view is :
 (a) α -helix
 (b) Primary structure
 (c) Tertiary structure
 (d) β -pleated sheath

77. Select the correct choice which identifies the chemical bonds (A, B, C) present in the given macromolecules :
 Fats = A, Protein = B, Polysaccharide = C
 A B C
 (a) Ester Peptide Glycosidic
 (b) Ester Glycosidic Peptide
 (c) Peptide Glycosidic Ester
 (d) Peptide Ester Glycosidic

78. Read the given statements and select the correct option.
Statement 1 : Tropical rainforests are disappearing fastly from developing countries such as India.
Statement 2 : No value is attached to these forests because these are poor in biodiversity.
 (a) Both statements 1 and 2 are correct.
 (b) Statement 1 is correct but statement 2 is incorrect.
 (c) Statement 1 is incorrect but statement 2 is correct.
 (d) Both statements 1 and 2 are incorrect

79. Observe a part of polypeptide shown below :


How many H_2O molecules got eliminated to form the above mentioned length of the polypeptide ?
 (a) 4 (b) 3
 (c) 2 (d) 5

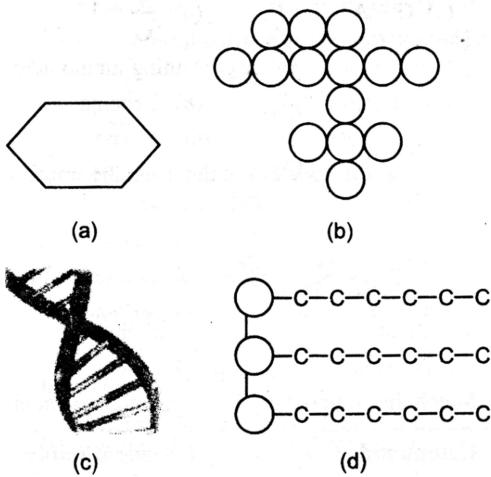
80. An exotic species that is introduced to a new area, spreads rapidly and eliminates native species is called
 (a) immigrant species
 (b) invasive species
 (c) destructive species
 (d) none of these

81. Carbohydrates are
 (a) aldehydic and ketonic derivatives
 (b) polyhydroxy compounds
 (c) optically active substances and hydrates of carbon
 (d) all above

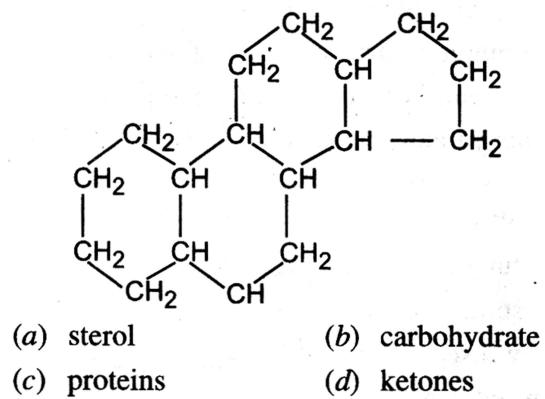
82. Which pair of geographical area shows maximum diversity in our country?
 (a) Sunderbans and Rann of Kutch
 (b) Eastern Ghats and Western Ghats
 (c) Eastern Himalayas and Western Ghats
 (d) Kerala and Punjab

83. In a national park, protection is provided to
 (a) flora and fauna
 (b) entire ecosystem
 (c) fauna only
 (d) flora only

84. Which structure represents a lipid molecule?



85. The given figure is a structure of



86. Match column I with column II and select the correct option from the given codes.

Column I	Column II
A. Rhinoceros	(i) High endemism
B. <i>In situ</i> conservation	(ii) Off site conservation
C. <i>Ex situ</i> conservation	(iii) On site conservation
D. Hotspots	(iv) Kaziranga
(a) A – (iv), B – (iii), C – (ii), D – (i)	(b) A – (iv), B – (i), C – (ii), D – (iii)
(c) A – (iv), B – (ii), C – (iii), D – (i)	(d) A – (iv), B – (i), C – (iii), D – (ii)

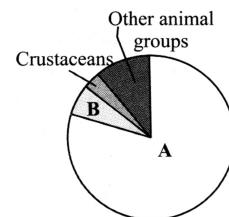
87. Find incorrect difference between purine and pyrimidine?

Purine	Pyrimidine
(A) Larger	Smaller
(B) 9 membered ring	6 membered ring
(C) Nitrogen at position 2,3,7,9	Nitrogen at position 2,3
(D) Adenine, Guanine	Cytosine, Thymine, Uracil

88. Select the incorrectly matched pair.

(a) UNESCO = United Nations Educational, Scientific and Cultural Organisation
 (b) CITES = Convention in International Trade in Elite Species
 (c) IUCN = International Union for Conservation for Nature and Natural Resources
 (d) WWF = World Wide Fund for Nature

89. Given pie diagram represents the proportionate number of species of major groups of invertebrates. Identify the groups A and B.



(a) A = Insects, B = Molluscs
 (b) A = Molluscs, B = Insects
 (c) A = Insects, B = Annelids
 (d) A = Molluscs, B = Annelids

90. Which of the following statements is not true about RNA?

(a) Does not have a double stranded structure
 (b) Thymine is present
 (c) Does not obey Chargaff's rule
 (d) The sugar contained in RNA is a ribose

ANSWER KEY

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

