UNIVERSITY OF LUCKNOW

D.Pharm Entrance Examination

Mathematics Group — Model Test Paper Set 7

Total Questions: 100 | Section A: Chemistry & Physics (50) + Section B: Mathematics (50)

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SECTION A — Chemistry & Physics [50]

Chemistry

1. Compounds that inhibit the action of compounds :

(a) Analgesics (b) Narcotic drug

(c) Antihistamines (d) Antipyritics

Answer: (c) Antihistamines

2. Which of the following is an antacid?

(a) Omeprazone (b) Cimetidine

(c) Novwstrol (d) Both Cimetidine & Omeprazole

Answer: (d) Both Cimetidine & Omeprazole

3. Which of the following is a tranquilizer?

(a) Oxytocin (b) Rantac

(c) Valium (d) Amoxycilin

Answer: (c) Valium

4. Drugs that inhibit the growth of bacteria and kill bacterial, respectively, are called : oJeeSb pees peerJeeCegDeeW :

(a) Bacteriostatic, Bactericidal (b) Both are called Bacteriostatic

(c) Both are called Bactericidal (d) Bactericidal, Bacteriostatic

Answer: (a) Bacteriostatic, Bactericidal

5. Isoniazid is an : DeeFmeesefve :

(a) Antipyretic (b) Antihistamine

(c) Analgesic (d) Anti-TB drug

Answer: (d) Anti-TB drug

6. Tetracycline are a type :

(a) Antibiotics (b) Analgesics

(c) Antihistamines (d) Antipyretics

Answer: (a) Antibiotics

7. Which of the following options represents the correct order of boiling points ?

(a) Propane < diethyl ether < 1, 2, propanediol (b) Propane > diethyl ether > 1, 2, propanediol

(c) Propane < 1, 2, propanediol < diethyl ether (d) Propane

Answer: (a) Propane < diethyl ether < 1, 2, propanediol

8. Dow's process is used for the preparation of : efvecveefueefKele ceW mes efke :

(a) Phenol (b) Ethers

(c) Alcohols (d) Alkyl halides

Answer: (a) Phenol

9. The Pka value is highest for: efke :

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(a) Both Etnanol & Phenol (b) Phenol

(c) Acetic acid (d) Ethanol

Answer: (d) Ethanol

10. Which of the following does not react with K Cr O ?

(a) Secondary alcohol (b) Tertiary alcohol

(c) All alcohol (d) Primary alcohol

Answer: (b) Tertiary alcohol

11. Haloalkanes cannot be prepared by : nwueesSukes :

(a) U.V light (b) Electrophilic substitution

(c) Electrophilic addition (d) Nucleophilic substitution

Answer: (b) Electrophilic substitution

12. Which of the following participates fast in SN2 mechanism?

(a) R-I (b) R-F

(c) R-Cl (d) R-Br

Answer: (a) R-I

13. Which ligand is used in elimination of harmful radioactive metals from the body?

(a) NCS (b) Cl

(c) CN (d) EDTA

Answer: (d) EDTA

14. Which d-block elements has highest oxidation state?

(a) Pd (b) Nb

(c) Os (d) Mn

Answer: (c) Os

15. while, Mn exhibits highest range of oxidation states from + 2 to +7. 150. Mn-Cu alloys indicate_____

(a) paramagnetic (b) ferromagnetic

(c) antiferromagnetic (d) diamagnetic

Answer: (b) ferromagnetic

16. Which of the following is the correct order of magnitude :

(a) [Co(NH)]3+ > [Co(H O)]3+ > [Co(CN)]3 (b) [Co(CN)]3

(c) [Co(CN)]3 > [Co(NH)]3+>[Co(H O)]3+ 6 3 6 2 (d) [Co(H O)]3+ > [Co(NH)]3+ > [Co(CN)]3

Answer: (d) [Co(H O)]3+ > [Co(NH)]3+ > [Co(CN)]3

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17. Stregth of ligand :

(a) II A group elements (b) 4d-block elements

(c) 4f-block elements (d) 5f-block elements

Answer: (c) 4f-block elements

18. Which of the following is the correct decreasing order of complex formation with ligand?

(a) Ln4+ > Ln3+ > Ln2+ (b) Ln2+ > Ln3+ > Ln4+

(c) Ln3+ > Ln2+ > Ln4+ (d) Ln3+ > Ln4+ > Ln2+

Answer: (a) Ln4+ > Ln3+ > Ln2+

19. Which option represents the correct order of stability?

(a) None of these options (b) IF > BrF > ClF > ICl

(c) ICl > ClF > BrF > IF (d) ClF > BrF > IF > ICl

Answer: (b) IF > BrF > ClF > ICl

20. What is the shape of IF +?

(a) Bent (b) Square planar

(c) Tetrahedral (d) Sea-saw

Answer: (d) Sea-saw

21. Which option represents correct arrangement per metallic character of given elements?

(a) Tl < In < Ga < B (b) B < Tl < In < Ga

(c) B < Ga < In < Tl (d) Tl < Ba < In < B

Answer: (c) B < Ga < In < Tl

22. Which oxides react with B O to form 2 3 metaborates?

(a) Both Acidic oxides & Basic oxides (b) Basic oxides

(c) Salts (d) Acidic oxides

Answer: (b) Basic oxides

23. The element Si is obtained by reducing SiO 2 with : SiO :

(a) Preons (b) Diamond

(c) Coke (d) Graphite

Answer: (c) Coke

24. Calcium carbonate is strongly heated to form : :

(a) Sodium carbonate (b) Calcium

(c) Sodium oxide (d) Calcium oxide

Answer: (d) Calcium oxide

25. Which of the following is a low spin square planar complex ?

(a) All of the options 3 (b) [Ni(CN)]2

(c) [PdCl]2 (d) [Pt(NH)]2+

Answer: (a) All of the options 3

Physics

26. With the increases of temperature, the fluidity of liquids ?

(a) No effect (b) Decreases

(c) Remains constant (d) Increases

Answer: (d) Increases

27. A circular coil of radius 'r' carries a current and the magnetic field at its centre is 'B'. At what distance from the centre on the axis of coil, the magnetic field will be B/8?

(a) 8r (b) 2r

(c) 3r (d) r

Answer: (c) 3r

28. Which of the following is not a source of electric field?

(a) Static charge (b) Current

(c) Capacitor (d) Changing magnetic field

Answer: (b) Current

29. A 500-watt heating unit is designed to operate on 115-volt line. If the line voltage drops to 110-volt line, the percentage drop in heat output will be :

(a) 8.5% (b) 7.6%

(c) 8.1% (d) 10.2%

Answer: (a) 8.5%

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30. Equivalent resistance between points A and B in adjoining circuit is :

(a) 13 (b) 12

(c) 7 (d) 5

Answer: (d) 5

31. Kirchhoff's Laws are applicable to ?

(a) AC only (b) AC and DC both

(c) None of the above (d) DC only

Answer: (b) AC and DC both

32. In He-Ne laser, population inversion is achieved in ?

(a) He atoms (b) Ne atoms

(c) Both the atoms (d) none of these atoms

Answer: (b) Ne atoms

33. Working of Laser is based on ?

(a) Spontaneous emission of radiation (b) Stimulated absorption of radiation

(c) Stimulated emission of radiation (d) None of the above

Answer: (c) Stimulated emission of radiation

34. A soap film appears colored in white light because of:

(a) reflection (b) diffraction

(c) interference (d) dispersion

Answer: (c) interference

35. Water rises to height of 4.0 cm in a capillary tube. If the capillary tube is titled such that it make an angle of 30° with the horizontal, to that light water will rise?

(a) 4.0 cm (b) 2.0 cm

(c) 6.0 cm (d) 8.0 cm

Answer: (d) 8.0 cm

36. That transport phenomenon, which causes viscosity in medium, is :

(a) Transportation of energy (b) Transportation of angular momentum

(c) Transportation of momentum (d) Transportation of particle

Answer: (c) Transportation of momentum

37. A satellite is revolving round the earth at a height of 600 km from the surface of earth. The speed of the satellite if (Radius of the earth = 6×1024 6400 km, mass of the earth : kg. 6.67×10−11 N-m^2/kg^2) G = ?

(a) 9.00 km/s (b) 4.92 km/s

(c) 11.00 km/s (d) 7.60 km/s

Answer: (d) 7.60 km/s

38. The law of gravitation gives the gravitational force between :

(a) the earth and the sun only (b) the earth and a point mass only

(c) any two charged bodies only (d) any two bodies having some mass

Answer: (d) any two bodies having some mass

39. Formula Volt × Charge/Time (V×Q/T) can be equivalent to :

(a) Acceleration (b) Work done

(c) Power (d) Velocity

Answer: (c) Power

40. The ratio of the largest and the shortest wavelengths of Lyman series for H-atoms is approximately ?

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(a) 16:7 (b) 9:4
(c) 9:5 (d) 4:3
Answer: (d) 4:3

41. The value of in the ψ (r, θ, φ) state of a 100 r hydrogen atom is (a is Bohr radius). 0 ?
(a) 0 (b) a
(c) 0 a 0 (d) 2a
Answer: (c) 0 a 0

42. The packing fraction of Body Centred Cubic Structure (BCC) is ?
(a) 0.84 (b) 0.72
(c) 0.34 (d) 0.68
Answer: (d) 0.68

43. The Maxwell's field equation ∇×B=μ J 0 represents ?
(a) Faraday's Law (b) Lenz's Law
(c) Ampere's Law (d) Gauss's Law
Answer: (c) Ampere's Law

44. The sign of charge carriers can be determined by utilizing ?
(a) Piezolectric effect (b) Mossbauer effect
(c) Hall effect (d) Meissner effect
Answer: (c) Hall effect

45. If a current is allowed to pass through a circuit consisting of two dissimilar metals, there is either an evolution or absorption of heat at the junctions depending upon the direction of the current. The effect is known as ?
(a) Peltier effect (b) Seebeck effect
(c) Joule's effect (d) Thomson effect
Answer: (a) Peltier effect

46. Two tuning forks when sounded simultaneously give one beat each in 0.25 s. The difference of their frequencies is:
(a) 4 (b) 6
(c) 8 (d) 2
Answer: (a) 4

47. A rod of length is clamped at both ends as well as at the middle point. The lowest possible frequency of vibration (velocity of sound = v) is:
(a) v/l (b) v/4l
(c) 2v/l (d) v/2l
Answer: (a) v/l

48. Which one of the following instruments work on the principle of damped oscillation?
(a) Ammeter (b) Helmhotz galvanometer
(c) Ballistic galvanometer (d) Voltmeter
Answer: (c) Ballistic galvanometer

49. When a monochrome light passes from vacuum to a material and vice-versa, which of the following characteristics of the light beam does not change ?
(a) intensity (b) velocity
(c) wavelength (d) frequency

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Answer: (d) frequency

50. A straight tunnel is bored through to centre of the earth. A body of mass 5 gm is dropped into it. Its motion will be:

(a) Free motion (b) Damped motion

(c) Simple harmonic motion (d) Forced motion

Answer: (c) Simple harmonic motion

SECTION B — Mathematics [50]

51. Which function is not the Riemann integrable ?

(a) continuous (b) unbounded

(c) discontinuous (d) bounded

Answer: (b) unbounded

52. The intersection of finitely many open sets is ?

(a) Open, open (b) Open, closed

(c) closed, open (d) Closed, closed

Answer: (b) Open, closed

53. If T is compact, then T is ?

(a) Closed and bounded (b) Bounded and open

(c) Unbounded and open (d) Closed and unbounded

Answer: (a) Closed and bounded

54. Topological space is ?

(a) Always (b) never

(c) Sometimes (d) Vice-versa

Answer: (c) Sometimes

55. A set T is compact if it has the property ?

(a) Heine-corel (b) Jaein-borel

(c) Uniqued (d) Heine-borel

Answer: (d) Heine-borel

56. If all convergent sequences are mapped to convergent sequences then the function is ?

(a) Discontinuous (b) Continuous

(c) differentiated (d) not defined

Answer: (b) Continuous

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57. Which is not the level transitive of conjugative classes :

(a) fold transitive (b) double transitive

(c) inverse transitive (d) Transitive

Answer: (c) inverse transitive

58. A finite group G is a ?

(a) Dihedral group (b) p-group

(c) cyclic group (d) conjugative group

Answer: (b) p-group

59. The points a, b, c, d taken in that order, in the complex plane are the vertices of a parallelogram if_?

(a) a + b = b + c (b) a + b = c + d

(c) a + c = b + d (d) a

Answer: (c) a + c = b + d

60. Find the number of anti symmetric relations on set A having 2 elements?

(a) 16 (b) 14

(c) 12 (d) 10

Answer: (c) 12

61. Which of the following is not included in general method to draw a algebraic curve for tracing?

(a) region (b) orthogonality

(c) tangent to the curve (d) symmetry

Answer: (b) orthogonality

62. Identify the set in which supremum of set is equal to infimum of the set?

(a) {1, 2, 3} (b) {a, b}

(c) {a} (d) empty

Answer: (c) {a}

63. If |A|=4, find the number of partitions of A?

(a) 25 (b) 10

(c) 20 (d) 15

Answer: (d) 15

64. YCT Section : Discipline-2 1. For what value of K does the function f(x, y) = 3xy, where (x, y) is not equal to (2, 3) and k whenever (x, y) = (2, 3)?

(a) 18 (b) 12

(c) 8 (d) 6

Answer: (a) 18

65. Find the limit of the function f(n) = 1 ?

(a) 3 (b) 0

(c) 1 1 (d) 2

Answer: (b) 0

66. Many scientists use mathematical model to convert data into _____?

(a) raw form (b) system

(c) passage (d) model

Answer: (d) model

67. What will we do to make the given differential equation exact?

(a) we bipolarate the same (b) we divide it by its derivatives

(c) we multiply it with integrating factor (d) we do integration on both sides

Answer: (c) we multiply it with integrating factor

68. Change in number of individuals in population over a period of time is called_____ ?

(a) population growth (b) exponential growth

(c) logistic growth (d) sigmoid growth

Answer: (a) population growth

69. Find the limit of function f(x, y) = x + 2y as(x, y) ?

(a) 5 (b) 4

(c) 2 (d) 3

Answer: (a) 5

70. Which rule is used to calculate limits when the function reaches to indeterminate forms?

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(a) C and D rule (b) L' Hospital's rule

(c) Cinco rule (d) Leibnitz rule

Answer: (b) L' Hospital's rule

71. Find the value of f(x, y)=8x + 5y ?

(a) 11 (b) 13

(c) 12 (d) 14

Answer: (a) 11

72. The divergence of a vector field A is always equal to zero if the vector field A can be expressed as?

(a) the curl of any vector field (b) divergence of any scalar field

(c) gradient of any scalar field (cid:2) (d) the divergence of vector field

Answer: (a) the curl of any vector field

73. Find the interior of {1, 2, 3, 4}?

(a) {3} (b) {2}

(c) {1} (d) empty

Answer: (d) empty

74. If R is the position vector, then divR is equal to ?

(a) 1 (b) 2

(c) 3 (d) 4

Answer: (c) 3

75. The limit points of < 1,0,2,1,0,2,1,0,2...> Is ?

(a) 2 only (b) 1 only

(c) 0 only (d) 1,0,2

Answer: (d) 1,0,2

76. The line integrals can be converted to surface integral using ..... in multiple connected domain?

(a) Sandwich theorem (b) Riemann equation

(c) Baire's Sandwich theorem (d) Green's theorem

Answer: (d) Green's theorem

77. In which case improper integral becomes equal 179 to Riemann integrable?

(a) occurs somehow (b) sometimes differentiable

(c) never possible (d) as a special case of Lebesgue integral

Answer: (d) as a special case of Lebesgue integral

78. The set of limit points of a sequence is:

(a) neither open nor closed (b) open

(c) both open and closed (d) closed set

Answer: (d) closed set

79. Green's theorem is used to?

(a) parameter of plan figures (b) bipolarate the same

(c) solve 2-D flow equation (d) volume of plane figures

Answer: (c) solve 2-D flow equation

80. A set G with one binary operation which is closed as well as associative is called?

(a) semigroup (b) group

(c) groupoid (d) monoid

Answer: (a) semigroup

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81. Find the domain of the function defined by f(z)=z ?

(a) Im(z)=0 z (b) re(z) is not equal to 0

(c) re(z)=0 (d) Im(z) is not equal to 0

Answer: (b) re(z) is not equal to 0

82. How many subgroups (p) of non cyclic groups G is possible?

(a) p+3 (b) p

(c) p+1 (d) p+2

Answer: (a) p+3

83. A metric space defined by {d(x,y)=r for all x,y ?

(a) algebra (b) sphere

(c) open ball (d) set

Answer: (b) sphere

84. Which property does not hold as a binary operation in groups?

(a) addition (b) Matrix multiplication

(c) Multiplication (d) subtraction

Answer: (b) Matrix multiplication

85. Continuous function C [a, b] from a to b is called ?

(a) bounded function (b) cyclic

(c) not defined (d) not bounded

Answer: (a) bounded function

86. Number of onto homomorphism from Klein's group to Symmetric group of order 4?

(a) does not exist (b) 2

(c) 1 (d) 3

Answer: (a) does not exist

87. If f(z) = u+iv is an analytic function in domain D then?

(a) u and v are parallel (b) u and v intersect each othe

(c) u and v form orthogonal family (d) u and v bipolarate each other

Answer: (c) u and v form orthogonal family

88. A linear operator define by T in metric space is said to be bounded if?

(a) T(x) is negative (b) ||T(x) || exists

(c) T(x) is positive (d) ||T(x) ||<k||x||

Answer: (d) ||T(x) ||<k||x||

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89. Which theorem connects the result < T(x),y > = < x,z > ?

(a) Hahn Banach Theorem (b) Reisz reprsentative theorem

(c) Hilbert Theorem (d) Picard theorem

Answer: (b) Reisz reprsentative theorem

90. How many real roots are possible for the x^5 x^4 x^3 equation ?

(a) no real root (b) at least one real root

(c) atleast two real roots (d) atleast three real roots

Answer: (b) at least one real root

91. Eigen values of a real symmetric matrix are always JeemleefJeke ?

(a) Positive (b) negative

(c) real (d) complex

Answer: (d) complex

92. The null space of A is the solution set of the equation ke ?

(a) Ax = b (b) Ax = 0

(c) Ax (d) None of these

Answer: (b) Ax = 0

93. Let A = 0 b 7 be a matrix with real ?

(a) 65 (b) 29

(c) 40 (d) 58

Answer: (b) 29

94. Consider the subspace {(x W = ,x .....x) ?

(a) 3 (b) 9

(c) 2 (d) 10

Answer: (c) 2

95. If =30, then the value is ?

(a) 12 (b) 4

(c) 8 5n +5n (d) 6

Answer: (b) 4

96. How many digits are there in ?

(a) 16 (b) 14

(c) 17 (d) 15

Answer: (c) 17

97. The least non-negative remainder when is divided by 5 is 2100 ke ?

(a) 3 (b) 0

(c) 1 (d) 2

Answer: (c) 1

98. The last digit of is 6500 ke ?

(a) 6 (b) None of these

(c) 4 (d) 2

Answer: (a) 6

99. The average of all multiples of 10 from 2 to 198 is 2 198 10 ?

(a) 90 (b) 110

(c) 100 (d) 120

Answer: (c) 100

100. The sum of the expression 1 1 1 1 + + +.....+ is 1+ 2 2+ 3 3+ 4 80+ 81 1 1 1 1 + + +.....+ is 1+ 2 2+ 3 3+ 4 80+ 81 J ?

(a) 7 (b) 8

(c) 9 (d) 10

Answer: (b) 8

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