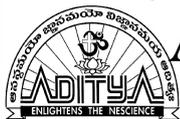# ADAT - 2017

(Aditya Degree Admission Test, a compulsory exam for admission into 3 years degree course)

ADITYA DEGREE COLLEGES

KAKINADA :: RAJAHMUNDRY :: VISAKHAPATNAM :: PALAKOL

Time : 2hrs   **Max Marks :100**

<u>Instructions:</u> 1. There will be 5 Sections- Botany, Zoology, Chemistry, Aptitude & Softskills.

2. Each section consists of 20 bits & each bit carries 1 Mark.

3. Each wrong answer entails 1/4 negative marking.

SECTION - A (BOTANY)

1. Which of the following statements regarding universal rules of nomenclature is wrong ?
   1. Both the words in a biological name, when hand-written are separately underlined.
   2. The first word in a biological name represents the genus.
   3. The first word denoting the genus starts with a capital letter.
   4. Biological names are generally in Greek and is written in italics.
   5. The second components in a biological name denotes the specific epithet.

2. Match the columns I and II, and choose the correct combination from the options given.

Column - I	Column - II
A) Ascomycetes	i) Ustilago
B) Phycomycetes	ii) Saccharomyces
C) Basidiomycetes	iii) Trichoderma
D) Deuteromycetes	iv) Albugo

	a	b	c	d			a	b	c	d
1.	2	1	4	3		2.	4	3	2	1
3.	2	4	1	3		4.	3	4	1	2

3. Thick pericarp of fleshy fruit consists of
   1. Epicarp   2. Mesocarp   3. Endocarp   4. All the above

4. Palisade parenchyma is absent in leaves of
   1. Gram   2. Soyabean   3. Sorghum   4. Mustard

5. Mitochondria and chloroplast are
   a) semi-autonomous organelles
   b) formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery
   Which one of the following options is correct :
   1. Both (a) and (b) are correct   2. (a) is true but (b) is false
   3. (a) is true but (b) is false   4. Both (a) and (b) are false

6. During mitosis ER and nucleolus begin to disappear at
   1. Early metaphase   2. Late metaphase   3. Early prophase   4. Late prophase

7. Which is not an antitranspirant?
   1. Low viscosity resin   2. BAP   3. Silicon oil   4. PMA

8. Which of the following is a free living nitrogen fixing bacterium?
   1. Rhizobium   2. Azotobacter   3. Xanthomonas   4. Rhizopus

9. Isotope of oxygen used in studying photolysis is
   1. ^{16}O 2. ^{15}O 3. ^{17}O 4. ^{18}O

10. In ETS, complexes I and IV are respectively
    1. NADH dehydrogenase and $FADH_2$
    2. $FADH_2$ and NADH dehydrogenase
    3. NADH dehydrogenase and cytochrome oxidase complex
    4. NADH dehydrogenase and ATP synthase

11. Roots are used in vegetative propagation of
    1. Ginger   2. Chrysanthemum   3. Sweet Potato   4. Potato
12. Plant part having two generations, one within the other is
    1. Seed   2. Germinated pollen grain   3. Embryo   4. Unfertilised ovule
13. Perisperm is found in
    1. Black pepper   2. Wheat   C. Maize   4. Groundnut
14. A test cross is performed to know
    1. Genotype of F_2 dominants   2. Linkage between two traits
    3. Number of alleles of a gene   4. Success of intervarietal and interspecific cross.
15. Linkage refers to
    1. Co-inheritance of two alleles of the same gene
    2. Attached X-chromosomes in Drosophila
    3. Co-inheritance of two different genes
    4. Role of sex-chromosomes in sex-determination.
16. Removal of introns and joining the exons in a defined order in a transcription unit is
    1. Splicing   2. Capping   3. Tailing   4. Transformation
17. Which is not a salient feature of genetic code?
    1. Ambiguous   2. Universal   3. Specific   4. Degenerate
18. Which is not correctly matched ?
    1. Explant-Excised plant part used for callus formation
    2. Cytokinins-Root initiation in callus
    3. Somatic embryos-Embryos produced by vegetative cells
    4. Anther culture-Haploid plants
19. A good producer of citric acid is
    1. Clostridium   2. Saccharomyces   3. Aspergillus   4. Pseudomonas
20. Agarose extracted from sea weeds finds use in
    1. PCR   2. Gel electrophoresis   3. Spectrophotometry   4. Tissue culture

SECTION - B (ZOOLOGY)

21. Flame cells & Malpighian tubules are the analogous organs in
    1. Insects & Arthropods respectively
    2. Arthropods & Echinoderms respectively
    3. Helminths & Arthropods respectively
    4. Arthropods & other insects with helminths respectively
22. In a child of 15 years age, plasma calcium level is diagnosed below optimum level. Which organ is malfunctioning
    1. Thyroid gland   2. Liver   3. Parathyroid   4. Posterior lobe of pituitary
23. How macula lutea and Corpus luteum are related?
    1. Contribute in maintaining pregnancy   2. Both are a source of hormones
    3. Both are characterised by their yellow colour   4. Both are found in human ovaries
24. A reptilian looks like house lizard is sitting on plant with its tail coiled around twig in your garden. Can you identify the animal?
    1. Garden lizard (calotes) showing camouflage   2. Chameleon showing protective colouration
    3. Varanus showing mimicry   4. Hemidactylus showing sexual dimorphism
25. Human Immuno Virus (HIV) contain a protein coat & genetic material and is horse chestnut shaped
    1. Double stranded DNA   2. Single stranded DNA
    3. Single stranded RNA   4. Double stranded RNA
26. Hybridomas are the fusion product of
    1. Normal antibody producing cell with myeloma
    2. Abnormal antibody producing cell with Myeloma
    3. Sex cells with Myeloma   4. Bone cells with Myeloma

27. Arrange the following in the order of increasing volume
    I) Tidal volume   II) Residual volume
    III) Expiratory Reserve Volume   IV) Vital capacity
    1. I < 2 < 3 < 4   2. I < 3 < 2 < 4   3. I < 4 < 3 < 2   4. I < 4 < 2 < 3

28. What is common among Silver fish, Scorpion, Crab & honey bee?
    1. Compound eyes   2. Poison glands   3. Jointed appendages   4. Metamorphosis

29. Diphtheria is caused by
    1. Poisons released by living bacterial cells into the host tissue
    2. Poisons released from dead bacterial cells into the host tissue
    3. Poisons released by virus into the host tissue
    4. Excessive immune response by the host's body

30. In the development history of mammalian heart, it is observed that it passes through a two-chambered fish-like heart, three chambered frog-like heart and finally four chambered stage. To which hypothesis can this above cited statement be approximated?
    1. Biogenetic law   2. Hardy-Weinberg law
    3. Lamarck's principle   4. Mendelian principles

31. Women who consumed the drug thalidomide for relief from vomiting during early months of pregnancy gave birth to children with
    1. No spleen   2. Hare-lip   3. Extra fingers & toes   4. Under developed limbs

32. Biological control methods adopted in agricultural pest control are based on
    1. The ability of the predator to regulate prey population   2. Size of the predator
    3. Size of the prey   4. None of the above

33. Which of the following technique is used if female partner is infertile due to uterine problems
    1. Intra uterine transfer   2. ZIFT   3. ET to surrogate mother   4. GIFT

34. MTP is considered relatively safe during
    1. First trimester   2. Second trimester   3. Third trimester   4. Any time of pregnancy

35. Rate of conduction of impulse in conducting system of heart is fastest in
    1. Bundle of His   2. Atrial muscles   3. A -V node   4. Purkinje fibres

36. Which of the following is the function of Glucocorticoids
    1. Lipolysis   2. Gluconeogenesis   3. Proteolysis   4. All the above

37. Drosophila flies with XXY genotype are females, but human beings with such genotype are abnormal males, it shows that
    1. Y - Chromosome is female determining in Drosophila
    2. Y - Chromosome is female determining in Drosophila
    3. Y - Chromosome is male determining in human beings
    4. Y - Chromosome has no role in sex determination either in Drosophila or in human beings

38. Identify the following in the digestive system of frog
    1. A - Stomach, B- Duodenum, C-Ileum
    2. A-Oesophagus, B - Stomach, C- Duodenum
    3. A-Oesophagus, B - Stomach, C-Ileum
    4. A - Stomach, B- Duodenum, C-Rectum

39. In the above diagram which one receives blood from pericardial haemocoel?
    1. C - Heart chamber, through aorta
    2. G - Anterior aorta, through ostia
    3. A - Heart chamber, through the ostia
    4. B - Alary muscles, through ventral diaphragm

40. Pickout the correctly labelled parts in the above given typical ommatidium.
    1. A - Crystalline cone, C - Retinal pigment sheath,B - Iris pigment sheath
    2. B - Iris pigment sheath, D - Rhabdome, F - Cone cell
    3. A - Nerve fibres, H - Crystalline cone, I - Corneagen cell
    4. J - Cone cell, A - Retinular cell, B - Iris pigment sheath

SECTION - C (CHEMISTRY)

41. The element with electronic configuration [Ar] $4S^2 3d^8$ is
    1. Mn   2. Co   3. Ni   4. Zn
42. Which of the following is an electrophile
    1. benzene   2. NH_3 3. H_2O 4. SO_3
43. Alkali metals are stored in
    1. water   2. alcohol   3. kerosene   4. open space
44. Huckel's Rule explains
    1. aromatic character   2. unsaturation   3. Hydrolysis   4. saturation
45. Which of the following is meta directing group
    1. CH_3 2. OH   3. NH_2 4. NO_2
46. In Bragg's equation $n\lambda = 2dSin\theta$, the letter "d" represents
    1. density of solid   2. distance between two faces of unit cell
    3. distance between two layers of atoms   4. diameter of atom.
47. The most electronegative element is
    1. Cl   2. F   3. O   4. N
48. Which among the follwoing is Lewis acid
    1. NaCl   2. $BaCl_2$ 3. $AlCl_3$ 4. CCl_4
49. Nessler's reagent is used for the detection of
    1. Cu^{2+} 2. NH_4^+ 3. Fe^{2+} 4. Zn^{2+}
50. Order of photochemical reaction is
    1. Zero order   2. First order   3. Second order   4. None
51. Ideal gas equation is
    1. PV=nRT   2. PR=VT   3. Pn = VRT   4. P=nVRT
52. Which one of the following is not linear
    1. $BeCl_2$ 2. CO_2 3. C_2H_2 4. H_2O
53. The average Kinetic energy of one mole of N_2 at T K is
    1. 2/3 RT   2. 3/2 R   3. 2/3 R   4. 3/2 RT
54. Sweetest Carbohydrate is
    1. Glucose   2. Sucrose   3. Starch   4. Fructose
55. Which of the following is non aromatic
    1. Cyclohexane   2. Naphthalene   3. Anthracene   4. Benzene
56. The element with electronic configuration $1S^2 2S^2 2P^6 3S^2 3P^3$ is
    1. P   2. Si   3. S   4. Al
57. H_2SO_5 is called
    1. Sulphuric acid   2. Caro's acid   3. Blue Vitriol   4. Hydrazoic acid
58. The oxidation number of oxygen in F_2O is
    1. -2   2. +2   3. -1   4. +1
59. The hybridisation of carbon in alkenes is
    1. SP^2 2. SP^3 3. SP   4. SP^3d
60. Units of rate of reaction is
    1. mole/sec/lit   2. Sec/mole/lit   3. mole/lit/sec   4. lit/sec/mole

SECTION - D (APTITUDE)

61. It is a certain code CAPITAL is coded as FZSHWZO then how LABOUR is coded in the same code
    1. OZENXQ   2.OZEMWQ   3. OEZXNQ   4. OZMEQW
62. DGPGJ : MPQPS : : KNENQ :_____
    1.RFUFX   2.RXUXF   3. TWFWZ   4. RFXFU
63. 36 : 216 : : 81 : _____
    1. 729   2. 629   3. 319   4. 826
64. Pick out the different word
    1. Owl   2. Parrot   3. Hawk   4. Eagle
65. Complete the series 24,60,120,210,_____
    1. 300   2. 336   3. 420   4. 525
66. A is son of B. C is the brother of A, D is the son of C. How is A related to D.
    1. Grandfather   2. Father   3. Uncle   4. Aunt

67. Arun travels 8km towards North, turns left and travels 3 km, then he turns right and travels 4 km then right and travels 3km. How far is he from starting point.
    1. 18 km   2. 15km   3. 11 km   4. 12km

68. If 9th of month falls on the day preceeding Sunday, on what day will 1st of the month fall.
    1. Friday   2. Saturday   3. Sunday   4. Monday

69. If P means "division' :R means addition :T means subtraction : V means Multiplication then find the value of 12V 4R 16P8T6.
    1. 44   2. 50   3. 28   4. 72

70. Which of the following does not belong to the group
    1. 52   2. 70   3. 68   4. 28

71. Find the average of 593, 477, 322, 609, 284
    1. 495   2. 549   3. 459   4. 594

72. If an amount of Rs. 90792 is distributed equally among 97 persons how much amount would each person get
    1.Rs 916   2. Rs 936   3. Rs 956   4. Rs 976

73. 74 % of a number is 1406. What is the number
    1. 1750   2. 1800   3. 1850   4. 1900

74. A canteen requires 28 dozens of bananas for a week. How many dozens of Bananas will it requires for 47 days.
    1. 6399   2. 3964   3.2256   4. 4216

75. What is the largest number to be added to 7700 to make it a perfect square
    1. 131   2. 44   3. 77   4. 98

76. Sumit invests Rs 4762 which is 25% of his monthly income, in insurance policy. What is his monthly income.
    1. Rs 28,572   2. Rs. 23,810   3. Rs 19,048   4. 14,285

77. One seventh of a number is 50 what will be 64% of that number
    1. 224   2. 238   3. 198   4. 328

78. The difference between 58% of a number and 39% of the same number is 247. What is 62% of the number
    1. 1300   2. 806   3. 754   4. 1170

79. There are 15 dozen candles in a box , if there are 39 such boxes, how many candles are there
    1. 7020   2.6660   3.6552   4. 3510

80. The average of 5 consecutive even numbers A,B,C,D and E is 52. What is the product of B and E
    1. 2916   2. 2988   3. 3000   4. 2800

SECTION - E (SOFT SKILLS)

Directions: Read the following passage carefully, identify the correct answer to each of the following questions an mark the corresponding letter to your answer.

Regular physical activity provides numerous health benefits from leaner bodies and lower blood pressure to improved mental health and cognitive functioning. As the school physical education programme promotes physical activity and can teach skills as well as from or change behavior, it holds an important key to influencing health and well-being across the life span. To improve the fitness of students, we need to rethink the design and delivery of school-based physical education programme. Adults in the United States think that information about health was more important for students to learn the content in language arts, mathematics, science, history or any other subject. Deposite this high ranking, most schools devote minimal curriculum time to teaching students how to lead healthy lives. Our first step might be to consider ways to increase curriculum time devoted to physical education. In addition, schools need to thought-fully analyse the design and delivery of school physical education programme to ensure that they are engaging, developmentally appropriate, inclusive and instructionally powerful.

81. According to this passage , regular physical activity is needed to :
    1. Control one's blood pressure   2. Lose one's weight
    3. Improve one's cognitive skills   4. Improve one's physical as well as mental health

82.   In order to tone up the physical education programme:
       1. It should be made compulsory at school
       2. As assement of the existing programme should be made
       3. A committee should be setup in every school
       4. The programme should be reoriented and implemented
83.   According to the Americans , health education is more important than teaching:
       1. social sciences   2. liberal arts   3. any subject   4. natural sciences
84.   the author wants the reoriented physical education programme to be :
       1. given minimal curriculum time   2. very comprehensive
       3. Relevant to the modern society   4. Thoughtful

FILL IN THE BLANKS
       Directions: Choose the appropriate word to fill in each of the following blanks and mark
       the corresponding letter as your answer

Articles:
85.   He is -------------- honest person.
       1. A   2. an   3. the   4. no article
86.   Have you found -------------- purse you lost yesterday.
       1. A   2. an   3. the   4. no article
Prepositions:
87.   An epidemic broke ----------- in the town last year.
       1. Out   2. down   3. up   4. on
88.   The cat ran -------------- the mouse.
       1. After   2. upon   3. on   4. up
Conjunctions:
89.   He could not get the prize------------ she tried hard for it.
       1. Yet   2. though   3. but   4. when
90.   She tried her best -------------- she couldn't succeed.
       1. Besides   2. incase   3. however   4. nevertheless
 Tenses:
91.   Someone ------------ away my bike with in an hour.
       1. Takes   2. took   3. has taken   4. had taken
92.   By july 2005,she ------------ in this firm for eleven years.
       1. Will work   2. will have been working   3. will be working   4. has been working
Correction of sentences :
       Directions: Identify the part containing the error in each of the following sentences and
       mark the corresponding letter as your answer.
93.   I am not hungry (A)/beside (B)/ I do not like eggs (C)/All correct. (D)
       1. A   2. B   3. C   4. D
94.   Of the two proposals (A)/ we think(B)/ the second is (C)/ the most attractive.(D)
       1. A   2. B   3. C   4. D
95.   Some peoples (A)/ feel that (B)/ no progress is possible (C)/ without discipline. (D)
       1. A   2. B   3. C   4 . D
96.   I went to the librarian and cashier (A)/ and they gave me (B)/ all facilities required (C)/ to
       complete the project.(D)
       1. A   2. B   3. C   4. D
Vocabulary:
       Directions: Choose the correct synonym to each of the following words and mark the
       corresponding letter as your answer.
97.   Exquisite
       1. Elegant   2. Ugly   3. Dark   4. Clear
98.   Obsolete
       1. Antiquated   2. fashionable   3. present   4. Recent
       Directions: Choose the correct antonym to each of the following words and mark the
       corresponding letter as your answer.
99.   Foreign
       1. Country   2. native   3. local   4. citizen
100.   Expedite
       1. Impede   2. exclude   3. add   4. delete

* * * * *