NAT –IIP Sample Paper

[Physical Sciences Group]

ntstests.pk

VERBAL ABILITY

Complete the sentences by choosing the most appropriate word, from the given lettered choices (A to D) below each.

1. There are _____ views on the issue of giving bonus to the employees.
a) Independent
b) Divergent
c) Modest
d) Adverse

2. Since she had not exercised in five years, Margarita attempt to jog five miles on her first day of cardio-training was a little _____.
a) Pessimistic
b) Irrelevant
c) Quixotic
d) Relieved

3. More insurers are limiting the sale of property insurance in coastal areas and other regions _____ natural disasters.
a) safe from
b) according to
c) despite
d) prone to

Each question below consists of a related pair of words, followed by five lettered pairs of words. Select the lettered pair that best expresses a relationship similar to that expressed in the original pair.

4. HEIGHT: MOUNTAIN
a) Depth : Trench
b) Shade : Tree
c) Weight : Age
d) Speed : Highway

Choose the lettered word or phrase that is most nearly opposite in meaning to the word in capital letters.

5. EXODUS
a) Influx
b) Home-coming
c) Return
d) Restoration

6. DETER
a) Twist
b) Intimidate
c) Encourage
d) Straighten

Choose the word most similar in meaning to the capitalized ones.

7. CANNY
a) Obstinate
b) Handsome
c) Clever
d) Stout

Read the passage to answer question

The explosion of a star is an awesome event. The most violent of these cataclysms, which produce supernovae, probably destroys a star completely. Within our galaxy of roughly 100 billion stars the last supernova was observed in 1604. Much smaller explosions, however, occur quite frequently, giving rise to what astronomers call novae and dwarf novae. On the order of 25 novae occur in our galaxy every year, but only two or three are near enough to be observed. About 100 dwarf novae are known altogether. If the exploding star is in a nearby part of the galaxy, it may create a "new star" that was not previously visible to the naked eye. The last new star of this sort that could be observed clearly from the Northern Hemisphere appeared in 1946. In these smaller explosions the star loses only a minute fraction of its mass and survives to explode again. Astrophysicists are fairly well satisfied that they can account for the explosions of supernovae. The novae and dwarf novae have presented more of a puzzle. From recent investigations that have provided important new information about these two classes of exploding star, the picture that emerges is quite astonishing. It appears that every dwarf nova – and perhaps every nova – is a member of a pair of stars. The two stars are so close together that they revolve around a point that lies barely outside the surface of the larger star. As a result the period of rotation is usually only a few hours, and their velocities range upward to within a two-hundredth of the speed of light.

8. According to the passage, our observations of nova are hampered by their extreme brightness.
a) Loss of mass
b) Speed of rotation
c) Distance from Earth
d) Tremendous violence

9. The production of supernova
a) occurs frequently
b) occurs 25 times in 1 year
c) occured in 1946
d) occured in 1604

10. By the term "new star" the author mean one that has recently gained in mass.
a) moved from a distant galaxy
b) become bright enough to strike the eye
c) not previously risen above the horizon
d) become visible by rotating in its orbit

ANALYTICAL REASONING

11. Testifying before the Senate committee investigating charges that cigarette manufacturers had manipulated nicotine levels in cigarettes in order to addict consumers to their products, tobacco executives argued that cigarette smoking is not addictive. The primary reason they gave in support of this claim was that cigarette smoking was not regulated by the Federal Drug Administration.

For the tobacco executives' argument to be logically correct, which of the following must be assumed?

a) Substances that are not addictive are not regulated by .....the Federal Drug Administration.
b) The tobacco executives lied when they claimed that .....cigarette smoking was not addictive.
c) Some addictive substances are not regulated by the .....Federal Drug Administration.
d) There is no scientific proof that cigarette smoking is .....addictive.

12. People should be held accountable for their own behavior, and if holding people accountable for their own behavior entails capital punishment, then so be it. However, no person should be held accountable for behavior over which he or she had no control.

Which of the following is the most logical conclusion of the argument above?

a) People should not be held accountable for the .....behavior of other people.
b) People have control over their own behavior.
c) People cannot control the behavior of other people.
d) Behavior that cannot be controlled should not be .....punished.

13. There is clear evidence that the mandated use of safety seats by children under age four has resulted in fewer child fatalities over the past five years. Compared to the five-year period prior to the passage of laws requiring the use of safety seats, fatalities of

children under age four have decreased by 30 percent.

Which one of the following, if true, most substantially strengthens the argument above?

a) The number of serious automobile accidents involving .....children under age four has remained steady over the .....past five years.
b) Automobile accidents involving children have decreased .....sharply over the past five years.
c) The use of air bags in automobiles has increased by .....30 percent over the past five years.
d) Most fatal automobile accidents involving children under .....age four occur in the driveway of their home.

14. Three men (Tom, Peter and Jack) and three women (Eliza, Anne and Karen) are spending a few months at a hillside. They are to stay in a row of nine cottages, each one living in his or her own cottage. There are no others staying in the same row of houses. Anne, Tom and Jack do not want to stay in any cottage, which is at the end of the row. Anne, Tom and Jack do not want to stay in any cottage, which is at the end of the row. Karen is next to Peter and Jack. Karen is next to Peter and Jack. None of the girls occupy adjacent cottages. The house occupied by Tom is next to an end cottage.

How many of them occupy cottages next to a vacant cottage?

a) 2
b) 3
c) 4
d) 5

15. An employee has been assigned the task of allotting offices to six of the staff members. The offices are numbered 1 - 6. The offices are arranged in a row and they are separated from each other by six foot high dividers. Hence voices, sounds and cigarette smoke flow easily from one office to another. Miss Robert's needs to use the telephone quite often throughout the day. Mr. Mike and Mr. Brown need adjacent offices as they need to consult each other often while working. Miss. Hardy, is a senior employee and has to be allotted the office number 5, having the biggest window. Mr. Donald requires silence in the offices next to his. Mr. Tim, Mr. Mike and Mr. Donald are all smokers. Miss Hardy finds tobacco smoke allergic and consecutively the offices next to hers to be occupied by non-smokers. Unless specifically stated all the employees maintain an atmosphere of silence during office hours.

In the event of what occurrence, within a period of one month since the assignment of the offices, would a request for a change in office be put forth by one or more employees?

a) Mr. Donald quitting smoking.
b) The installation of a noisy teletype machine by Miss Hardy in her office.
c) Mr. Robert's needing silence in the office (s) next to her own.
d) Mr. Tim taking over the duties formerly taken care of by Miss. Robert.

16. Three girls Joan, Rita, and Kim and two boys Tim and Steve are the only dancers in a dance program, which consists of six numbers in this order: One a duet; two a duet; three a solo; four a duet; five a solo; and six a duet. None of the dancers is in two consecutive numbers or in more than two numbers. None of the dancers is in two

consecutive numbers or in more than two numbers. The second number in which Tim appears is one that comes after the second number in which Kim appears.
Rita must perform only in duets if

a) Kim is in number two
b) Kim is in number five
c) Tim is in number two
d) Tim is in number six

e) A off, B off, C on.

17. The only people to attend a conference were four ship captains and the first mates of three of those captains. The captains were L, M, N and O; the first mates were A, D and G.
Each person in turn delivered a report to the assembly as follows:
Each of the first mates delivered their report exactly after his or her captain. The first captain to speak was M, and captain N spoke after him.
In case A spoke immediately after L and immediately before O, and O was not the last speaker, L spoke

a) Second
b) Third
c) Fourth
d) Fifth

18. A five-member research group is chosen from engineers I, J, K and L and chemists M, N, O and P. At least three engineers must be in the research group. However, I refuses to work with L, J refuses to work with M, N refuses to work with O, L refuses to work with N.
If J and K are chosen, which is necessarily true?

I. I is chosen
II. L is chosen
III. Either N or O is chosen

a) I only
b) II only
c) III only
d) II and III only

19. An increasing number of people prefer to retain their own individuality and their own identity and consequently this has lead to a decline in the marriage rate.

a) Very few people prefer to bring up a family.
b) Emotionally divorce is not an easy procedure.
c) 700 couples from 1000 surveyed couples complained that they were losing their identity.
d) Married people have to make a considerable effort to make the marriage last.

20. Successfully adjusting to one's environment leads to happiness. War at a universal level war destroys the weaker people, who are the most unable to adjust to their environment. Thus, war at the universal level puts weaklings out of their misery and allows more space for their predators to enjoy life in a better manner. As those actions have to be performed, which maximize the level of happiness of the greatest number, war at a universal level should take place.

I. Technology could change the environment.
II. War at the universal level would be an integral part of the environment.
III. It is possible for the strong to survive without suppressing the weak.

a) I only
b) III only
c) II only
d) I and III only

QUANTITATIVE REASONING

21. Three partners shared the profit in a business in the ratio 5 : 7 : 8. They had partnered for 14 months, 8 months and 7 months respectively. What was the ratio of their investments?

a) 5 : 7 : 8
b) 20:49:64
c) 38:28:21
d) None

22. The average temperature for Wednesday, Thursday and Friday was 40C. The average for Thursday, Friday and Saturday was 41C. If temperature on Saturday was 42C, what was the temperature on Wednesday?

a) 39 C

b) 44 C

c) 38 C

d) 41 C

23. Interest obtained on a sum of Rs. 5000 for 3 years is Rs. 1500. Find the rate percent.

a) 8%

b) 9%

c) 10%

d) 11%

24. Three numbers are in ratio 1:2:3 and HCF is 12. The numbers are:

a) 12,24,36

b) 11,22,33

c) 12,24,32

d) 5,10,15

25. 1.14 expressed as a per cent of 1.9 is:

a) 6%

b) 10%

c) 60%

d) 90%

26. If 2/3 of A=75% of B=0.6 of C, then A:B:C is

a) 2:3:3

b) 3:4:5

c) 4:5:6

d) 9:8:10

27. A sells an article to B at a profit of 10% B sells the article back to A at a loss of 10%. In this transaction:

a) A neither losses nor gains

b) A makes a profit of 11%

c) A makes a profit of 20%

d) B loses 20%

28. The ratio between the perimeter and the breadth of a rectangle is 5 : 1. If the area of the rectangle is 216 sq. cm, what is the length of the rectangle?

a) 16 cm

b) 18 cm

c) 24 cm

d) Data inadequate

e) None of these

29. What is the probability of getting a sum 9 from two throws of a dice?

a) 1/6

b) 1/8

c) 1/9

d) 1/12

30. A hall is 15 m long and 12 m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of four walls, the volume of the hall is:

a) 720

b) 900

c) 1200

d) 1800

CHEMISTRY

31.Matter is composed of

a) radicals
b) molecules
c) atoms
d) ions

32. During the process of chemical bonding, atoms try to attain

e) noble gas configuration
f) stable configuration
g) simple configuration
h) unstable configuration

33. The attractive force that holds atoms together in molecules is called

i) bond
j) chemical bond
k) force of attraction
l) electrostatic force

34. Nature of cathode rays remains the same irrespective of the

m) glass used
n) gas used
o) electrode used
p) potential used

35. Cathode rays always travel in a

q) circular path
r) cured path
s) zig zag path
t) straight path

36. Deflecting of cathode rays towards positively charged plats indicate it is

u) negatively charged
v) neutral
w) electromagnetic wave
x) positively charged

37. By reducing the pressure of the gas in a discharge tube

y) gas glows
z) gas ionizes
aa) gas conducts electricity
bb) a discharge takes place

38. Neon sign is an example of

cc) florescent tube
dd) distillation tube
ee) discharge tube
ff) electrolytic tube

39.Electric current in the conductors is the movement of

gg) charged particles
hh) electrons
ii) protons
jj) neutrons

40. Atomic theory was particulate by

kk) Dalton
ll) Newton
mm) Bohr
nn) Thompson

41.At STP, which element has definite shape and volume?

A. Ag
B. Hg
C. Ne
D. Xe

42.Which elements contain atoms that form colored ions and have more than one positive oxidation state?

A. alkali metals
B. alkaline earths
C. noble gases
D. transition elements

43.As sodium phosphate dissolves in 100 milliliters of pure water, the pH of the resulting solution:

A. decreases
B. increases
C. remains the same
D. can not be determined from the given information

44.At standard pressure, the steam-water equilibrium temperature occurs at:

A. 0 K
B. 100 K
C. 273 K
D. 373 K

45.An atom of an element contains 20 protons, 20 neutrons and 20 electrons. The element is:

A. an alkali metal
B. an alkaline earth metal
C. a halogen
D. a noble gas

ISLAMIYAT

46. Prophet Muhammad (PBUH) belonged to _____ family.

a) Hashmi
b) Quraishi
c) Makki
d) Madni

47. In the begining Prophet Muhammad (PBUH) worked as a shepherd for

a) Banu Saad
b) Banu Asad
c) Banu Ummayya
d) Banu Makhzoom

48. Prophet Muhammad (PBUH) had _____ sons.

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

49. Prophet Muhammad (PBUH) had _____ daughters.

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

50. In the "Sacrilegious wars", when Prophet Muhammad (PBUH) was 20 years of age, Quraish and their allies were lead by

a) Abu Jahal
b) Abu Lahab
c) Umayah bin Khalaf
d) Harb bin Umayah

PAKISTAN STUDIES

51. Who was the first President of the Constitution Assembly of Pakistan?

a) Liaquat Ali Khan
b) Quaid-e-Azam
c) Moulvi Tameez-ud-Din
d) Sardar Abdur Rab Nishtar

52. After how many years did Pakistan got its first constitution?

a) 5 years
b) 7 years
c) 9 years
d) 11 years

53. What document was firstly drafted to give pace to constitution making process?

a) Representative Act
b) Pakistan Act
c) Independence Act
d) Objective Resolution

54. When the Constituent Assembly passed the Objective Resolution?

a) 14th February 1949
b) 12th March 1949
c) C. 9th June 1949
d) D. 15th August 1949

55. When Mohammad Ali Bogra presented Bogra Formula in the assembly?

a) January 1953
b) April 1953
c) September 1953
d) October 1953

PHYSICS

56. Tensile strain is equal to

A Force per unit area
B Force per unit volume
C Extension per unit length
D Force per unit length

57. In elastic collisions,

A only total momentum of colliding objects is conserved.
B only total kinetic energy is conserved.
C both of momentum and total kinetic energy are conserved.
D neither momentum of colliding bodies nor total kinetic energy are recoverable.

58. Total angular momentum of a body is given by

A $I \times \omega$; where I: moment of inertia of body, ω: angular velocity
B $I^2 \times \omega$; where I: moment of inertia of body, ω: angular velocity
C $I^2 \times \omega^2$; where I: moment of inertia of body, ω: angular velocity
D $I \times \omega^2$; where I: moment of inertia of body, ω: angular velocity

59. Force that acts on a mass of 1 g and gives it an acceleration of 1 cms-2 is defined as

A 1 newton
B 1 dyne
C 1 pound-force
D 1 pa-force

60. An object moving in a circle of radius ‘r’ with a constant speed ‘v’ has a constant acceleration towards center equal to

A v^2/r
B v/r
C $v^2 \times r$
D $v \times r$

61. Einstein's mass-energy relationship states that if mass decreases by Δm, energy released ΔE is given by

A ΔE = Δm × c, where "c" denotes speed of light.
B ΔE = Δm × c^2, where "c" denotes speed of light.
C ΔE = Δm/c, where "c" denotes speed of light.
D ΔE = Δm/c^2, where "c" denotes speed of light.

62. Bernoulli's principle states that, for streamline motion of an incompressible non-viscous fluid:

A pressure at any part + kinetic energy per unit volume = constant
B kinetic energy per unit volume + potential energy per unit volume = constant
C pressure at any part + potential energy per unit volume = constant
D pressure at any part + kinetic energy per unit volume + potential energy per unit volume = constant

63. While Young's modulus ‘E’ relates to change in length and bulk modulus ‘K’ relates to change in volume, modulus of rigidity ‘G’ relates to change in:

A weight
B density
C shape
D temperature

64. Young's modulus is defined as

A tensile strain/tensile stress
B tensile stress/tensile strain
C tensile stress × tensile strain
D length/area

65. Velocity of escape is equal to

A r × √(2g); where r: radius of Earth or any other planet for that matter, g: gravitational field strength
B g × √(2r); where r: radius of Earth or any other planet for that matter, g: gravitational field strength
C √(2g)/r; where r: radius of Earth or any other planet for that matter, g: gravitational field strength
D √(2gr); where r: radius of Earth or any other planet for that matter, g: gravitational field strength

66. Effect of diffraction is greatest if waves pass through a gap with width equal to

A frequency
B wavelength
C amplitude
D wavefront

67. Visible light has wavelength of

A 5 × 10-7 m
B 3 × 108 m
C 6 × 10^3 m
D 4 × 104 m

68. From double-slit experiment, quantities to be measured are

A slit separation
B fringe separation
C slit-to-screen distance
D all of above

69. For destructive interference, path difference is

A odd number of half wavelengths
B even number of half wavelengths
C whole number of wavelengths
D even whole number of wavelengths

70. Constructive interference happens when two waves are
A out of phase
B zero amplitude
C in phase
D in front

COMPUTER SCIENCE

71. A computer derives its basic strength from

a) speed
b) accuracy
c) memory
d) all of the above
e) none of the above

72. Modern computers compared to earlier computers are

a) faster and larger
b) less reliable
c) larger and stronger
d) slower but more reliable
e) faster and smaller

73. The use of computer for business applications is attractive because of its

a) accuracy
b) reliability
c) speed
d) secret code facility
e) all of the above

74. A computer is capable of performing almost any task provided, that it can be

a) coded
b) memorised
c) analysed
d) reduced to a series of logical steps
e) changed top mathematic equation

75. ABIT represents a

a) decimal digit
b) octal digit
c) binary digit
d) hexa decimal digit
e) none

76. A company has very high speed, accuracy and reliability. Its intelligence quotient could be of the order of

a) 100
b) 0
c) 50
d) 200
e) 99.99

77. Computer cannot do anything without a

a) chip
b) memory
c) output device
d) program
e) none of the above

78. A computer possesses information

a) as directed by the operator
b) automatically
c) at once
d) gradually and eventually
e) by truncating

79. Pick up the false statement

a) computer can manipulate both numeric and non-numeric symbols
b) computer errors can usually be traced to faulty programs or inaccurate input data
c) the facts or informational raw materials represented by numeric and non-numeric symbols are called information
d) the space in the primary storage section is divided into four areas: input, working,storage, output and program storage.
e) information is the relevant knowledge that results from the processing and arranging of data in an ordered and useful form.

80. Processors of all computers, whether micro, mini or mainframe must have

a) ALU
b) primary storage
c) control unit
d) all of these
e) none of the above

81.The essential software of computer is:

A. packages
B. application software
C. operating system
D. none of the above

82.Relational database is previewed by user as:

A. a collection of tables
B. a collection of attributes
C. a collection of rows and columns
D. a collection of rows only

83.Pointer variables are used for storing:

A. Data values
B. Address of another variable
C. Both data values and address
D. None of the above

84. A process known as _____ is used by large retailers to study trends.
A. data mining
B. data selection
C. POS
D. data conversion

85. _____terminals (formerly known as cash registers) are often connected to complex inventory and sales computer systems.
A. Data
B. Point-of-sale (POS)
C. Sales
D. Query

MATHEMATICS

86. 0.003 x 0.02 = ?

a) 0.06
b) 0.006
c) 0.0006
d) 0.00006

87.What is the average of the numbers: 0, 0, 4, 10, 5, and 5?

a) 2
b) 3
c) 4
d) 5

88.What is the rate of discount if a bicycle which cost Rs.4,000 is sold for Rs.3,200?

a) 14%
b) 16%
c) 18%
d) 20%

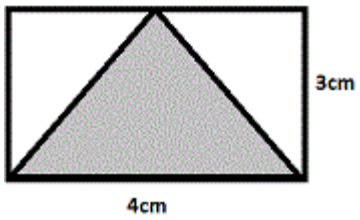
89.|-4| + |4| - 4 + 4 = ?

a) 0
b) 2
c) 4
d) 8

90.What is the value of x in $3x - 15 - 6 = 0$?

a) 7
b) 8
c) 9
d) -9

91.What is the area in cm^2 of the shaded region in the diagram below?



a) 6
b) 7
c) 8
d) 9

92.If A completes a particular work in 8 days and B the same work in 24 days. How many days will it take if they work together?

a) 4
b) 5
c) 6
d) 7

93.What comes next in the sequence: 1, 3, 11, 43, _____?

a) 161
b) 171
c) 181
d) 191

94.What is the distance travelled by a car which travelled at a speed of 80km/hr for 3 hours and 30 minutes?

a) 275km
b) 280km
c) 285km
d) 290km

95.In a class of 40 students 20% are girls. How many boys are there in the class?

a) 26
b) 28
c) 30
d) 32

96.In the exam 45% students failed and 550 students were successful.The total number of students who appeared in the exam were:
(a) 1000
(b) 900
(c) 1500

97) A group of students volunteered to finish a construction work in 25 days. 1Q of the students did not come and the work could be finished in 35 days. The original number of students in the group were

(a) 25.00

(b) 32.00

(c) 35.00
(d) 37.00

98) A man bought a flat for Rs. 8,20,000. He borrowed 55% of this money from a bank. How much money did he borrow from the bank?

(a) Rs. 4,51,000
(b) Rs. 4,52,000
(c) Fvs. 4,53,000

(d) Rs. 4,54,000

99) A primary school had an enrollment of 850 pupils in January 1970. In January 1980 the enrollment was 1,120; What was the percentage increase for the enrollment?

(a) 31.76%
(b) 33.50%
(c) 30,65%

(d) 34.76%

100) The number, whose 7% is 42, is

(a) 300

(b) 400

(c) 500
(d) 600