NAT –IIP Sample Paper

[Physical Sciences Group]

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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

BIOLOGY

BOTANY

31. The leaves of a plant living in arid conditions are needle-like in order to reduce water loss. Which of the following organs of such plant perform photosynthesis instead of leaves?

A. Roots

B. Stem

C. Leaf hair

D. Flowers

32. Which of the following molecules is/are involved in oxidation-reduction reactions of photosynthesis?

I. NAD

II. NADH

III. Plastoquinane

A. Only I

B. Only II

C. Both I & II

D. Both II & III

33. Which of the following has a pair of Alleles on its chromosomes?

A. Pollen grain

B. Embryonic sac

C. Human gamete

D. Bryophyte space

34. In the temperature ecosystem, the growth of plants and trees fall during:

A. Summer

B. Winter

C. Spring

D. Autumn

35. Of the following types of Ecosystem, which one would be biologically the most productive:

A. Ordinary agriculture lands

B. Shallow lakes

C. Coastal seas

D. Alluvial plains

36. Sugarcane (Saccharum officinarum) belongs to:

A. Gramineae

B. Leguminasea

C. Compositeae

D. Solanaceae

37. The botanical name of Kachnar is:

A. Saraca indica

B. Parkinsonia aculeate

C. Bauhinia variegatea

D. None of the above

38 NADH from the Krebs cycle is approximately equal to:

(a) 2 ATP

(b) 3 ATP

(c) 4 ATP

(d) 6 ATP

(e) None of these

39 In mitochondrial electron transport chains, the final c acceptor is:

(a) H_2O

(b) H_2O_2

(c) NAD+

(d) FAD

(e) None of these

40 The movement of water from cell to cell via plasmadesmata is called:

(a) Symplastic

(b) Transmembrane

(c) Apoplastic

(d) Facilitated

(e) None of these

41 In maize plant, the CO_2 fixation mechanism is called:

(a) C_3 pathway

(b) C_4 pathway

(c) CAM pathway

(d) C_3 – C_4 intermediate

(e) None of these

42 Salt-loving plants are known as:

(a) Glycophytes

(b) Halophytes

(c) Xerophytes

(d) Mesophytes

(e) None of these

43 With the addition of solution to a liquid system, the water potential of the system:

(a) Increases

(b) Decreases

(c) Remains stable

(d) Remains variable

(e) None of these

44 The conversion of pyruvate into acetyl Co. A is called:

(a) Glycolysis

(b) Fermentation

(c) Oxidative carboxylation

(d) B-Oxidation

(e) None of these

45 Between adenine and thymine, there are:

(a) Two hydrogen bonds

(b) 3 hydrogen bonds

(c) One hydrogen bond

(d) 4 hydrogen bonds

(e) None of these

46 The stage of meiosis in which pairing of homologous chromosomes starts is called:

(a) Leptotene

(b) Zygotene

(c) Diplotene

(d) Pachytene

(e) None of these

47 The site of chromosome on which a gene is located is called:

(a) Allele

(b) Locus

(c) Site

(d) Trait

(e) None of these

48 In a dihybrid cross, the ratio of F2 generation is:

(a) 9:3:3:1

(b) 3:1

(c) 1:2:1

(d) 1:1

(e) None of these

49 When a single gene has multiple effects, the phenomenon is called:

(a) Codominance

(b) Epistasis

(c) Pleiotropy

(d) Genostasis

(e) None of these

50 Lamarck's theory of evolution was published in:

(a) 1807

(b) 1808

(c) 1809

(d) 1810

(e) None of these

CHEMISTRY

51.Matter is composed of

a) Radicals
b) Molecules
c) Atoms
d) Ions

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

e) Noble gas configuration
f) Stable configuration
g) Simple configuration
h) Unstable configuration

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

i) Bond
j) Chemical bond
k) Force of attraction
l) Electrostatic force

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

m) Glass used
n) Gas used
o) Electrode used
p) Potential used

55. Cathode rays always travel in a
q) Circular path
r) Cured path

s) Zig zag path
t) Straight path

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

u) Negatively charged
v) Neutral
w) Electromagnetic wave
x) Positively charged

57. 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

58. Neon sign is an example of

cc) Florescent tube
dd) Distillation tube
ee) Discharge tube
ff) Electrolytic tube

59.Electric current in the conductors is the movement of

gg) Charged particles
hh) Electrons
ii) Protons
jj) Neutrons

60. Atomic theory was particulate by

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

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

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

62.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

63.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

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

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

65.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

66.The rate of a chemical reaction is:

A. Determined from a balanced chemical equation
B. The change in concentration of products and reactants in a certain amount of time
C. Not possible to determine experimentally

D. Expressed in units of time

67.In neutralization:

A. The base is neutralized
B. The acid is neutralized
C. A salt is formed
D. All of the above

68.An alkene with 16 carbons has a molecular formula of:

A. $C_{16}H_{16}$
B. $C_{16}H_{34}$
C. $C_{16}H_{8}$
D. $C_{16}H_{32}$

69.Splitting of atoms is also called:

A. Merging
B. Moderating
C. Fusion
D. Fission

70.Which formula represents sodium sulfate?

A. $NaSO_4$
B. $NaSO_3$
C. Na_2SO_3
D. Na_2SO_4

ZOOLOGY

71. Insects are characterized by:
(a) 3 pairs of legs
(b) Two pairs of antennae
(c) Wings on body
(d) Large sized eggs
(e) None of these

72 Body is metamorically segmented in:
(a) Porifera
(b) Annelida
(c) Coelentrata
(d) None of these

73 Which of the following arthropod are totally aquatic?
(a) Crustaceans
(b) Insects
(c) Milipedes
(d) None of these

74 Dorsal tubular nerve cord is characteristic of:

(a) Some chordates
(b) Some non chordates
(c) All non chordates
(d) All chordates
(e) None of these

75 Opposable thumbs are characteristic feature of:

(a) Lagomorpha
(b) Primates
(c) Edentata
(d) None of these

76 Differences in the scales of fishes and reptiles lies in their being:

(a) Endodermal and dry
(b) Epidermal and dry
(c) Epidermal and wet
(d) Endodermal and wet
(e) None of these

77 Which of the following has oxygenated blood?

(a) Renal veins
(b) Pulmonary veins
(c) Pulmonary artery
(d) Hepatic portal veins
(e) None of these

78 Scapula is the bone of:

(a) Skull
(b) Pelvic girdle
(c) Pectoral girdle
(d) Vertebral column
(e) None of these

79 All the digestive are formed in vertebrates by:

(a) Ectoderm only
(b) Endoderm only
(c) Mesoderm only
(d) None of these

80 Ammonia is chief excretory product in

(a) Reptiles
(b) Turtles
(c) Mammals
(d) Fish
(e) None of these

81 Cnidarians are animals with _____ .

a) Stinging cells
b) Bilateral symmetry
c) Appendages
d) No bones

82 Which animal has bilateral symmetry?

a) Sea anemone
b) Jellyfish
c) Butterfly
d) Sponge

83 Which is NOT an arthropod

a) Lobster
b) Clam
c) Centipede
d) Spider

84 How do spoges get food?

a) Paralyzing
b) Filtering
c) Poison
d) Stinging cells

85 Tapeworm is an example of a _____ worm.

a) Segmented
b) Annelid
c) Flat
d) Round

86 Mollusks have shells.

a) Some do, some don't
b) False
c) Only bivalves do
d) True

87 The name echinoderm means what?

a) Double life
b) Ringed body
c) Spiney skin
d) Two shells

88 Which arthropods have six legs?

a) Insects
b) Arachnids
c) Spiders
d) Crustaceans

89 Arachnids have how many body segments?

a) One
b) Two
c) Three
d) Four

90 Which animal is an echinoderm?

a) Neither sea stars or sea urchins
b) Sea urchin
c) Both sea stars and sea urchins
d) Sea star

ISLAMIYAT

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

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

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

a) Banu Saad
b) Banu Asad

c) Banu Ummayya
d) Banu Makhzoom

93. Prophet Muhammad (PBUH) had _____ sons.

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

94. Prophet Muhammad (PBUH) had _____ daughters.

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

95. In the “Sacrilegious wars”, when Prophet Muhammad (PBUH) was 20 years of age, Quraish and their allies were led by

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

PAKISTAN STUDIES

96. 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

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

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

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

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

99. 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

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

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