Synchro School Pre-Foundation Course

(For class IX to X moving students)

[Time : 03:00 Hrs.]   [Maximum Marks : 90]

INSTRUCTIONS TO CANDIDATES

1. *Attempt all questions.*

2. *The question paper has four sections viz. Science, Mathematics, Logical Aptitude & English.*

3. *Each section consists of objective type Questions.*

4. *Four alternatives have been given with each of the objective Questions. You have to select **the single correct alternative. Each correct answer carries one mark.***

5. ***There is No negative marking and no deduction will be made for WRONG attempt.***

6. *The answer sheet is supplied with this question paper and you are advised to indicate your answer on this Answer Sheet only.*

7. *Rough work should be done only on the blank spaces provide. Extra paper will not be supplied.*

8. *Logarithm table will not be supplied. Use of calculators, slide rule is not permitted.*

9. *There are different types of questions, you will find special direction for each set of questions. Be sure you have understood the direction before attempting the answer to any question.*

10. *Do not spend too much time on questions that are difficult for you. Go on the other questions and come back to the difficult ones later.*

11. *Before you start marking your answer, write your Name at the top of the answer sheet.*

12. *Do not help your neighbour in your own interest.*

Name.. Roll Number...

SCIENCE

Q.1 Acceleration due to gravity at earth's surface is 10 m s^{-2}. The value of acceleration due to gravity at the surface of a planet of mass $\frac{1}{5}$ th and radius $\frac{1}{2}$ of the earth is –
(a) 4 m s^{-2} (b) 6 m s^{-2}
(c) 8 m s^{-2} (d) 12 m s^{-2}

Q.2 If the Earth stops rotating, the apparent value of g on its surface will –
(a) increase everywhere
(b) decrease everywhere
(c) remain the same everywhere
(d) increase at some places and remain the same at some other places

Q.3 The masses of two planets are in the ratio 2 : 3. Their radii are in the ratio 3 : 4. The accelerations due to gravity on the planets are in the ratio –
(a) 8 : 9   (b) 9 : 8   (c) 32 : 27   (d) 1 : 2

Q.4 Strictly speaking, Newton's law of gravitiation is appliecable to–
(a) bodies in solar system
(b) galaxies only
(c) sphere of radius 10^{-3} Å
(d) point masses

Q.5 Earth exerts a force of 2.5 N on an apple. What is the force exerted by apple on Earth ?
(a) Not defined   (b) Data is not adequate
(c) 2.5 N   (d) $2.6 \times \frac{G}{g}$ N

Q.6 The work done on a body does not depend upon :
(A) force applied
(B) displacement
(C) initial velocity of body
(D) angle at which force is inclined to the displacement

Q.7 A force 4 N acts through a distance of 11 m in the direction of the force. The work done is–
(a) 10 J   (b) 11 J   (c) 15 J   (d) 44 J

Q.8 Two bodies of masses 1 kg and 4 kg are moving with equal kinetic energies. The ratio of their linear momentum is–
(a) 1 : 4   (b) 1 : 2   (c) 4 : 1   (d) 2 : 1

Q.9 An engine developes 10 kW of power. How much time wil it take to lift a mass of 200 kg to a height of 40 m (g = 10 m/s^2)
(A) 4 s   (B) 5 s
(C) 8 s   (D) 10 s

Q.10 A particle of mass m is hanging vertically by an ideal spring of force constant k. If the mass is made to oscillated vertically, its total energy is–
(a) maximum at extreme position
(b) maximum at mean position
(c) minimum at mean position
(d) same at all position

Q.11 The tension in the string of a simple pendulum is–
(a) constant
(b) maximum in the extreme position
(c) zero in the mean position
(d) none of the above

Q.12 A simple pendulum is made of body which is a hollow sphere containing mercury suspended by means of a wire. If a little mercury is drained off, the period of the pendulum will–
(a) remain unchanged   (b) increase
(c) decrease   (d) become erratic

Q.13 A neutral atom (atomic no. > 1) consists of -
(a) Only protons
(b) neutrons + protons
(c) Neutrons + electrons
(d) Neutron + proton + electron

Q.14 The nucleus of the atom consists of -
(a) Proton and neutron
(b) proton and electron
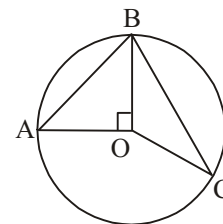(c) Neutron and electron
(d) Proton, neutron and electron

Space for Rough Work

Q.15 Who discovered neutron -
(a) James Chadwick   (b) William Crooks
(c) J.J. Thomson   (d) Rutherford

Q.16 Cathode rays are -
(a) Protons   (b) Electrons
(c) Neutrons   (d) α-particles

Q.17 Cathode rays are made up of -
(a) Positively charged particles
(b) Negatively charged particles
(c) Neutral particles
(d) None of these

Q.18 What is the ratio of mass of an electron to the mass of a proton -
(a) 1 : 2   (b) 1 : 1
(c) 1 : 1837   (d) 1 : 3

Q.19 Anode rays were discovered by -
(a) Goldstein   (b) J. Stoney
(c) Rutherford   (d) J.J. Thomson

Q.20 The number of electrons in one molecule of CO_2 are -
(a) 22   (b) 44   (c) 66   (d) 88

Q.21 Fluid mosaic model' was given by –
(a) Robertson   (b) Gorter and Grendel
(c) Singer and Nicolson (d) Danielli and Davson

Q.22 Mitochondria are not found in –
(a) Liver cells   (b) Nerve cells
(c) Muscle cells   (d) Mature RBCs

Q.23 Balanoglossus belong to the group :
(a) Platyhelminthes   (b) Annelida
(c) Cephalochardata   (d) Hemichordata

Q.24 Which of the following is a true fish ?
(a) Silverfish   (b) Jellyfish
(c) Starfish   (d) Dogfish

Q.25 Which of the following is not a fish ?
(a) Cuttlefish   (b) Sucker fish
(c) Flatfish   (d) Pipe fish

Q.26 Least capacity of regeneration in mammals is found in :
(a) Nervous tissue of brain
(b) Endothelium of blood vessels
(c) Skeletal tissue of bones
(d) Epithelial tissue of skin

Q.27 AIDS is caused by :
(a) Varicella virus
(b) Rubeola virus
(c) Treponema palliadum
(d) Human immunodeficiency virus

Q.28 Which one of the following is a Gymnoperm ?
(a) Spirogyra   (b) Marchantia
(c) Pinus   (d) Mustard

Q.29 Which one of the following is involved in denitrification ?
(a) Azobacter   (b) Nitrobacter
(c) Nitrosomonas   (d) Pseudomonas

Q.30 Which one of the following can be used as a biofertilizer –
(a) Plasmodium   (b) Rhizobium
(c) Chenopodium   (d) Agrobacterium

MATHEMATICS

Q.31 If one angle of a cyclic trapezium is triple the other, then the greater one measures :
(a) 90º   (b) 105º   (c) 120º   (d) 135º

Q.32 In the adjoining figure, A, B, C are three points on a circle with centre O. If $\angle AOB = 90º$ and $\angle BOC = 120º$, then $\angle ABC$ is–

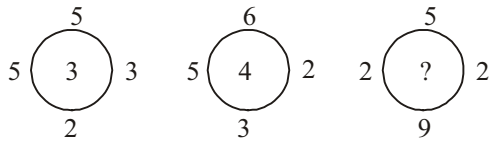(a) 60º   (b) 75º
(c) 90º   (d) None of these

Space for Rough Work

Q.33 The bisectors of any two adjacent angles of a parallelogram intersect at-
(a) 30° (b) 45°
(c) 60° (d) 90°

Q.34 Three angles of a quadrilateral are of magnitudes 80°, 95° and 120°. The magnitude of the fourth angle is-
(a) 80° (b) 65° (c) 75° (d) 70°

Q.35 If ABCD is a parallelogram and E, F are the centroids of Δ s ABD and BCD respectively, then EF equals-
(a) AE (b) BE (c) CE (d) DE

Q.36 If the mean of 3, 4, x , 7, 10 is 6, then the value of x is-
(a) 4 (b) 5 (c) 6 (d) 7

Q.37 A group of 10 items has mean 6. If the mean of 4 of these items is 7.5, then the mean of the remaining items is-
(a) 6.5 (b) 5.5 (c) 4.5 (d) 5.0

Q.38 The mean of a set of numbers is $\bar{x}$. If each number is increased by λ, the mean of the net set is-
(a) $\bar{x}$ (b) $\bar{x} + \lambda$
(c) $\lambda \bar{x}$ (d) None of these

Q.39 If a variable takes the discrete values $\alpha + 4$, $\alpha - \dfrac{7}{2}$, $\alpha - \dfrac{5}{2}$, $\alpha - 3$, $\alpha - 2$, $\alpha + \dfrac{1}{2}$, $\alpha - \dfrac{1}{2}$, $\alpha + 5$ $(\alpha > 0)$, then the median is-
(a) $\alpha - \dfrac{5}{4}$ (b) $\alpha - \dfrac{1}{2}$
(c) $\alpha - 2$ (d) $\alpha + \dfrac{5}{4}$

Q.40 A right circular cone is cut off at the middle of its height and parallel to the base. Call the smaller cone so formed A and the remaining part B, then :
(a) Vol. A < Vol. B (b) Vol. A = Vol. B
(c) Vol. A > Vol. B (d) Vol. A = $\dfrac{1}{2}$ (Vol.B)

Q.41 A right cylinder and a right circular cone have the same radius and the same volume. The ratio of the height of the cylinder to that of the cone is –
(a) 3 : 5 (b) 2 : 5
(c) 3 : 1 (d) 1 : 3

Q.42 The ratio of the volume of a right circular cylinder and a right circular cone of the same base and height will be :
(a) 1 : 3 (b) 3 : 1
(c) 4 : 3 (d) 3 : 4

Q.43 If a solid sphere of radius r is melted and cast into the shape of a solid cone of height r, then the radius of the base of the cone is–
(a) 2r (b) 3r (c) r (d) 4r

Q.44 If each side of a cube is doubled, then its volume :-
(a) is doubled (b) becomes 4 times
(c) becomes 6 times (d) becomes 8 times

Q.45 The graphs of $y = 2 + x^2$, $y = -x^2$ are drawn on the same set of axes, then
(a) they intersect
(b) they do not intersect
(c) they are on the same side of x-axis
(d) they overlap each other

Q.46 If area of a square is x cm^2 then area of the circle formed by the same perimeter is –
(a) $\dfrac{4x}{\pi}$ cm^2 (b) $\dfrac{6x}{\pi}$ cm^2
(c) $\dfrac{4x}{\pi}$ m^2 (d) $\dfrac{6x}{\pi}$ m^2

Q.47 Side of a square inscribed in a circle of radius r is
(a) $2\sqrt{2}$ r (b) $\sqrt{2}$ r (c) $\sqrt{4}$ r (d) $\sqrt{8}$ r

Q.48 The number of triangles with any three of the lengths 1, 4, 6 and 8 cms is –
(a) one (b) two (c) three (d) four

Q.49 If one angle of a triangle is equal to half the sum of the other two equal angles, then the triangle is –
(a) isosceles (b) scalene
(c) equilateral (d) right angled

Q.50 $3^{x-y} = 27$ and $3^{x+y} = 243$, then x is equal to–
(a) 0 (b) 4 (c) 2 (d) 6

Space for Rough Work

LOGICAL APTITUDE

Q.51 5, 8, 14, 26, 50, ...
(a) 91   (b) 92   (c) 105   (d) 98

Q.52 5, 9, 21, 37, 81, ...
(a) 163   (b) 153   (c) 183   (d) 203

Q.53 Ashok started walking towards Nourth. After walking 30 m he turned left and walked 40 m. He then turned left and walked and walked 30 m. He again turned left and walked 50 m. How far was he from his original position?
(a) 50 m   (b) 40 m   (c) 30 m   (d) None of these

Q.54 If THEN is written as RLBS, then CASE may be written as
(a) PAER   (b) EAPP
(c) EPAP   (d) AEPJ

Q.55 If A denotes −, C denotes ×, D denotes ÷, E denotes +, then 14 C 3 A 12 E 4 D 2 is equal to –
(a) 17   (b) 32   (c) 28   (d) 6

Q.56 If in a certain language PRIVATE is coded as 1234567 and RISK is coded as 2098, how is RIVETS coded in that language?
(a) 687543   (b) 234769
(c) 496321   (d) 246598

Q.57 Following question contain four pairs of word related in some respect. Identify the pair which is different from the other three pairs.
(a) Uncle : Aunt
(b) Grandfather : Grandmother
(c) Father-in-law : Mother -in-law
(d) Brother : Sister

Q.58 Following question contain four pairs of word related in some respect. Identify the pair which is different from the other three pairs.
(a) Courageous : Timid
(b) Clear : Vague
(c) Native : Alien
(d) Old : Ancient

Q.59

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   5            6            5
5 ( 3 ) 3    5 ( 4 ) 2    2 ( ? ) 2
   2            3            9
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(a) 3   (b) 6   (c) 7   (d) 8

Q.60

9	?	16
64	10	36
144	20	256

(a) 20   (b) 40   (c) 5   (d) 0

ENGLISH

A. Three alternatives are given below in each sentence. Choose the correct response and tick the option. (Q.61 & 62)

Q.61 If I knew his address ....
(a) I would have given it to you
(b) I would give it to you
(c) I will give it to you
(d) I will be give it to you

Q.62 I would not go there ....
(a) If I was you   (b) If I were you
(c) If had been you   (d) If I would be you

B. Choose the most suitable alternative to make the sentence logical in sense. The alternatives are marked a, b, c, below the sentence. (Q. 63 to Q.65)

Q.63 During the rainy season this stream was ....
(a) over flowed
(b) over flew
(c) over flown
(d) overflowing

Q.64 When the robbers had put all the money in the bag they ....
(a) fled   (b) flee
(c) fleed   (d) fleet

Q.65 Hard work is bound to .... your health.
(a) affect   (b) effect
(c) effected   (d) affected

Space for Rough Work

C. Fill in the blanks with suitable Preposition from the alternatives given under each sentence.
(Q. 66 to Q. 68)

Q.66 The history of Hindu religion dates .... ancient time.
(a) from   (b) since   (c) for   (d) two

Q.67 Kanishka was initiated .... Budhism by Buddhist monks.
(a) to   (b) into   (c) in   (d) with

Q.68 She could not muster .... courage to stand against the police.
(a) to   (b) up
(c) about   (d) with

D. Choose the word nearest in meaning to the italicised word. (Q. 69 to Q. 71)

Q.69 The travel agent will *confirm* my reservation for next week's flight to London.
(a) approve   (b) obtain
(c) ratify   (d) verify

Q.70 I *stood up for* him when every one else was criticizing him.
(a) tolerated him
(b) opposed him
(c) supported him energetically
(d) faced him boldly

Q.71 *Malice* is a feeling that we should always avoid.
(a) ill will   (b) cruelty
(c) forming   (d) jealousy

E. Select the word which is closest to the opposite in meaning of the italicised word. (Q. 72 to 76)

Q.72 This *appointment* was confirmed last month.
(a) disappointment   (b) suspension
(c) dismissal   (d) unappointment

Q.73 I like his *friendly* attitude.
(a) jealous   (b) hostile
(c) vicious   (d) wicked

Q.74 She was in a *dejected* mood.
(a) irritable   (b) jubilant
(c) rejected   (d) gloomy

Q.75 This offer has come as *a great boon* to me.
(a) blemish   (b) misfortune
(c) curse   (d) injustice

Q.76 Under which gender would word 'teacher' fall.
(a) masculine   (b) feminine
(c) common   (d) neuter

Q.77 Which of the following sentences or options is correct.
(a) The legs of the chairs
(b) The chair's legs
(c) The chairs' legs
(d) The chair with legs

Q.78 Which of the following sentences or options is correct.
(a) They are richer than us
(b) They are richer than we
(c) There rich than us
(d) They are richest than us

Q.79 Which of the following sentences or options is correct.
(a) I saw a child who was crying
(b) I saw a child which was crying
(c) I saw a child that was crying
(d) I saw a child whom was crying

F. Choose the correct word to fill in the blanks
(Q. 81 to Q. 84)

Q.80 .... money is better than none.
(a) a little   (b) little   (c) the little   (d) if little

Q.81 Sheela is the .... of the two sisters.
(a) elder   (b) older
(c) eldest   (d) oldest

Q.82 I have not met her .... last week.
(a) since   (b) for
(c) from   (d) to

Q.83 Find the suitable Relative Pronoun.
You get .... you deserve.
(a) what   (b) when
(c) whom   (d) it

Space for Rough Work

Q.84 Choose the correct Simile.
As cool as ....
(a) snow   (b) rose
(c) cucumber   (d) grass

G Tick the feminine gender of the following.
(Q. 85 & Q. 86)

Q.85 Earl
(a) dutchess   (b) earless
(c) countess   (d) pearless

Q.86 Master
(a) madam   (b) teacher
(c) mistress   (d) sir

Q.87 Tick the correct sentence.
(a) excuse me for the troubles
(b) excuse me for the trouble
(c) excuse me for a trouble
(d) excuse me to a trouble

Q.88 Tick the correct sentence.
(a) she gave me four dozen pencils
(b) she gave me four dozens pencils
(c) she gave me four dozens of pencils
(d) she gave four dozen with pencils

H. Choose the correct collective noun. (Q. 89 & Q. 90)

Q.89 We saw a .... of ships in the
(a) crew   (b) regiment
(c) fleet   (d) group

Q.90 The police dispersed the ....
(a) mob   (b) team
(c) group   (d) gang

ANSWERKEY
Synchro Sample paper Class X

SCIENCE

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	c	d	c	d	c	d	d	b	c	d	d	b	d	a	a
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	b	b	c	a	a	c	d	d	d	c	a	d	c	d	b

MATHEMATICS

Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	d	b	d	b	a	c	d	b	a	a	d	b	a	d	b
Ques.	46	47	48	49	50										
Ans.	a	b	a	c	b										

LOGICAL APTITUDE

Ques.	51	52	53	54	55	56	57	58	59	60
Ans.	d	b	d	d	b	b	d	d	b	c

Ques.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	b	b	a	a	a	a	b	b	d	c	a	c	b	b	c
Ques.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	c	a	a	a	a	a	a	a	c	c	c	b	a	c	a

Space for Rough Work