

RPS GROUP OF SCHOOLS
under the aegis of RPS Education Society, M/Gadh

विद्यया कर्म क्षेत्र में सबसे आगे...

BRITISH COUNCIL

Aspirations
Dreams
come True

RPS 3rd All India Online & Offline Mega Event
OLYMPIAD 2022
Golden opportunity to win **400 Prizes**

PHASE-1 SUNDAY
13 FEBRUARY
I to X
9:00 A.M. onwards (Online)

REGISTER YOURSELF
ONLINE ONLY

Last date for Registration :
FRIDAY,
FEBRUARY 11, 2022

Prizes shown in thought bubbles: Smartphone, Tablet, Scooter, Bicycle, Sports Kit.

RPSOLYMPIAD-2022

CLASS-9th

M.M. 70

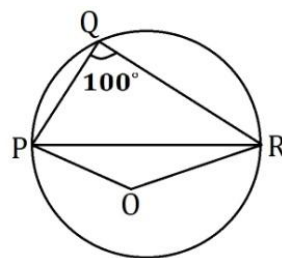
Class -9th
English (10)

Time: 70 minutes

1. Horatius said, "Death comes sooner or later." (Change into indirect speech)
 - (a) Horatius said that death came sooner or later.
 - (b) Horatius wished that death comes sooner or later.
 - (c) Horatius said that death comes sooner or later.
 - (d) Horatius told that death came sooner or later.
2. There is no love lost between them means
 - (a) They love each other.
 - (b) They are not on good terms.
 - (c) Their relation is very cordial.
 - (d) None of these.
3. It is a must to write this letter. (Change into passive voice)
 - (a) It is a must to be written this letter.
 - (b) It is a must be to write this letter.
 - (c) It is to be written this letter.
 - (d) It is a must for this letter to be written.
4. All that glitters is not gold. (The underlined clause is)
 - (a) Noun clause
 - (b) Principal clause
 - (c) Adjective clause
 - (d) Adverb clause
5. We discussed the issue at a meeting all misconceptions could be clarified. (Fill the gap by choosing the correct option)
 - (a) so
 - (b) if
 - (c) while
 - (d) in order that
6. This year farmers to get more returns. (Fill the gap by choosing the correct option)
 - (a) should
 - (b) ought
 - (c) used
 - (d) must
7. He dares the challenge. (Fill the gap by choosing correct option)
 - (a) accept
 - (b) accepted
 - (c) to accept
 - (d) accepting
8. A car runs petrol.
 - (a) on
 - (b) of
 - (c) from
 - (d) by
9. Find a correct sentence.
 - (a) We have been knowing each other for five years.
 - (b) He is not understanding it.
 - (c) I have worked in this college since ten years.
 - (d) The judge is hearing the case.
10. country must work for peace.
 - (a) Each
 - (b) Every
 - (c) Any
 - (d) All

Mathematics (20)

11. Which of the following is equal to x^2 ?
- (a) $x^{\frac{12}{7}} - x^{\frac{5}{7}}$ (b) $\sqrt[12]{(x^4)^{\frac{1}{3}}}$ (c) $(\sqrt{x^3})^{\frac{2}{3}}$ (d) $x^{\frac{2}{4}} \times x^{\frac{6}{4}}$
12. Value of $(256)^{0.16} \times (256)^{0.09}$ is
- (a) 4 (b) 8 (c) 64 (d) 256
13. If $y^{97} + 97$ is divided by $y + 1$, then remainder is
- (a) 0 (b) 1 (c) 95 (d) 96
14. If $81y^2 - k = \left(9y + \frac{1}{2}\right)\left(9y - \frac{1}{2}\right)$, then value of $\frac{1}{k}$ is
- (a) 0 (b) -4 (c) 4 (d) 2
15. If $\sqrt{3}=1.732$, then $\sqrt{\frac{\sqrt{3}-1}{\sqrt{3}+1}}$ is equal to
- (a) 2.732 (b) 0.2679 (c) 0.732 (d) 0.517
16. If $\frac{a}{b} + \frac{b}{a} = -1$ ($a, b \neq 0$), the value of $a^3 - b^3$ is
- (a) 1 (b) -1 (c) 0 (d) $\frac{1}{2}$
17. Which is the example of geometrical Line?
- (a) Blackboard (b) Sheet of Paper
(c) Meeting place of two walls (d) Tip of sharp pencil
18. If a Linear equation has Solutions $(-3, 3)$, $(0, 0)$ and $(3, -3)$, then it is of the form
- (a) $y - x = 0$ (b) $x + y = 0$
(c) $-2x + y = 0$ (d) $-x + 2y = 0$
19. The Diagonals of the rectangle ABCD intersect at O. If $\angle COD=78^\circ$, then $\angle OAB$ is
- (a) 35° (b) 51° (c) 70° (d) 110°
20. In ΔPQR , if $\angle R > \angle Q$ then
- (a) $QR > PR$ (b) $PQ > PR$ (c) $PQ < PR$ (d) $QR < PR$
21. In the given figure find angle OPR.
- (a) 20° (b) 15°
(c) 12° (d) 10°



23. The curved surface area of Circular cylinder of height 14 cm is 88 cm^2 . The diameter of the base is
(a) 2 cm (b) 3 cm (c) 4 cm (d) 6 cm
24. Which of the following is not a measure of central tendency.
(a) Standard deviation (b) Mean (c) Median (d) Mode
25. If $x = 3 - 2\sqrt{2}$, then value of $x^4 - \frac{1}{x^4}$ is
(a) $216\sqrt{2}$ (b) $-818\sqrt{2}$ (c) $-484\sqrt{2}$ (d) $-816\sqrt{2}$
26. The quadrilateral formed by joining mid-points of the consecutive sides of a square is
(a) Rhombus (b) Square (c) Rectangle (d) Parallelogram
27. If the diameter of a sphere increases by 20% then its radius increase by:
(a) 5% (b) 10% (c) 20% (d) 40%
28. If each side of a triangle is doubled, then the percentage increase in the area of triangle.
(a) 30% (b) 100% (c) 300% (d) 400%
29. The perimeter of an isosceles triangle is 32 cm. The ratio of one of the two equal sides to its base is 3 : 2. Find area of the triangle.
(a) 48 cm^2 (b) $28\sqrt{3} \text{ cm}^2$ (c) $32\sqrt{2} \text{ cm}^2$ (d) 44 cm^2
30. If one angle of a triangle is equal to sum of other two angles, then the triangle is
(a) An obtuse angled triangle (b) A right angled triangle
(c) An isosceles triangle (d) An equilateral triangle

Social Science (10)

31. When was Napoleon Bonaparte defeated at Waterloo?
(a) 1820 (b) 1815 (c) 1810 (d) 1805
32. What was Dawes Plan?
(a) A Nazi plan to suppress the Jews
(b) Stalin's plan of collectivization
(c) American plan to take out Germany from the financial crisis
(d) American plan to control the Bolshevik
33. Who were 'Kulaks' in Soviet Union?
(a) poor peasants (b) Church fathers (c) socialist revolutionaries (d) well-to-do peasants
34. How many permanent members are there in the United Nations Security Council?
(a) 5 (b) 10 (c) 15 (d) 20
35. Identify the term that is used for the now elections after the death of an elected representative?
(a) General Election (b) By Election (c) Mid – term Election (d) Re- election

36. In which state is lying 'Mahe' a part of Puducherry, Union Territory?
 (a) Tamilnadu (b) Andhra Pradesh (c) Kerala (d) Karnataka
37. Name the Himalayas that is lying between rivers Kali and Teesta?
 (a) Assam Himalayas (b) Punjab Himalayas
 (c) Nepal Himalayas (d) Kumaun Himalayas
38. October heat is due to –
 (a) Very low temperature (b) widespread rain
 (c) Low pressure over Andaman Sea (d) high temperature and humid conditions
39. Which Crop is grown in Rabi season?
 (a) Jute (b) Cotton (c) Wheat (d) Rice
40. Under social exclusion
 (a) criminals are not accepted by the society
 (b) groups are excluded from facilities of society
 (c) groups are termed as untouchables
 (d) individuals are given a sense of security

Aptitude (Reasoning) (10)

Directions (41) : In each of the following questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

41. The sequence 10000, 121, 100, 31, 24, –, 20 represent a number x with respect different bases. The missing number in this sequence is
 (a) 16 (b) 21 (c) 10 (d) 22
42. ab – d – aaba – na – badna – b
 (a) badna (b) andaa (c) dbanb (d) bbda

Directions (43): Study the following information carefully and answer the questions given below it :

Digit	7	3	5	0	2	1	6	4	9	8
Code	N	H	L	T	F	D	R	Q	G	P

Following conditions are to be observed:

- (i) If the first digit is even and the last digit is odd, they are to be coded as \$ and @ respectively
- (ii) If the first digit is odd the last digit is even, they are to be coded as # and £ respectively.
- (iii) If 0 is preceded as well as followed by an odd digit, then 0 is to be coded as ↑
- (iv) If 0 is preceded as well as followed by an even digit, then 0 is to be coded as ↓
- (v) 0 is not considered as either even or odd.

43. What will be the code for 36250098?
 (a) \$RFLTTG£ (b) #RFLTTG@ (c) #RFLTTG£ (d) \$\$RFLTTG@
44. In a certain code LETHARGY is written as ZHSBMFUI. How is MANGROVE written in that code?
 (a) SPWFHOWN (b) FUPSNBOH (c) SPWFNBOH (d) FWPSNBOH
45. A direction pole was situated on the crossing. Due to an accident the pole turned in such a manner that the pointer which was showing East, started showing South. One traveler went to the wrong direction thinking it to be west. In what direction actually he was travelling?
 (a) North (b) South (c) East (d) West
46. Looking at a portrait of a man, Harendra said, " His mother is the wife of my father's son. Brothers and sisters I have none. "At whose portrait was Harendra looking?
 (a) His nephew (b) His cousin (c) His uncle (d) His son

Directions (47) : Study the information below and answer questions based on it.

A leading socialite decided to organise a dinner and invited a few of her friends. Only the host and the hostess were sitting at the opposite ends of a rectangular table, with three persons along each side. The prerequisite for the seating arrangement was that each person must be seated such that at least on one side it has a person of opposite sex. Maqbool is opposite Shobha, who is not the hostess. Ratan has a woman on his right and is sitting opposite a woman. Monisha is sitting to the hostess's right, next to Dhirubhai. One person is seated between Madhuri and Urmila who is not the hostess. The men were Maqbool, Ratan, Dhirubhai and Jackie, while the women were Madhuri, Urmila, Shobha and Monisha

47. The eighth person present, Jackie, must be
 I. the host II. seated to Shoba's right III. seated opposite Urmila
 (a) I only (b) III only (c) I and II only (d) II and III only

Direction (48) : In each of the following questions, there is a certain relationship between two given numbers one on side of :: and one number is given another side of :: while another number on is to be found from the given alternatives, having the same relationship with this number as the numbers of the given pair bear. Choose the best alternative.

48. 11 : 101 :: 91 : ?
 (a) 225 (b) 810 (c) 205 (d) 901

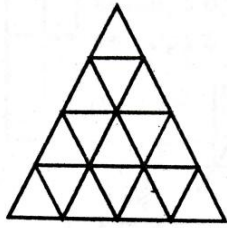
Direction (49) : Find the next figure in the given series.

49.

PROBLEM FIGURES					ANSWER FIGURES			
A	B	C	D	E	1	2	3	4

Direction (50) : Count the number parallelogram.

50.



(a) 47

(b) 45

(c) 41

(d) 39

Science (20)

Physics (7)

51. From an elevated point P , a stone is projected vertically upwards. When the stone reaches a distance h below P , its velocity is double of its velocity at a height h above P . The greatest height attained by the stone from the point of projection P is:

(a) $\frac{3}{5}h$

(b) $\frac{5}{3}h$

(c) $\frac{7}{5}h$

(d) $\frac{5}{7}h$

52. A uniform chain of length 2m is kept on a table such that a length of 60cm hangs freely from the edge of the table. The total mass of the chain is 4kg. What is the work done in pulling the entire chain on the table

(a) 7.2 J

(b) 3.6 J

(c) 120 J

(d) 1200 J

53. A satellite is revolving in a circular orbit at a height ' h ' from the earth's surface (radius of earth R ; $h \ll R$). The minimum increase in its orbital velocity required, so that the satellite could escape from the earth's gravitational field, is close to (Neglect the effect of atmosphere)

(a) \sqrt{gR}

(b) $\sqrt{gR/2}$

(c) $\sqrt{gR}(\sqrt{2} - 1)$

(d) $\sqrt{2gR}$

54. A body floats in water with 40% of its volume outside water. When the same body floats in oil, 60% of its volume remains outside oil. The relative density of the oil is

(a) 0.9

(b) 1.2

(c) 1.8

(d) 1.5

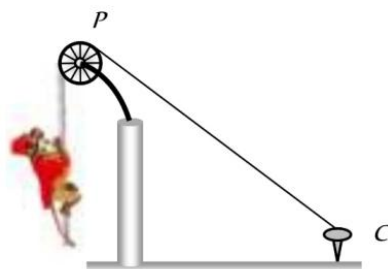
55. One end of a massless rope, which passes over a massless and frictionless pulley P is tied to a hook C while the other end is free. Maximum tension that the rope can bear is 360 N , with what value of minimum safe acceleration (in ms^{-2}) can a monkey of 60 kg move down on the rope

(a) 16

(b) 6

(c) 4

(d) 8



56. A stone dropped from a building of height h and it reaches after t seconds on earth. From the same building if two stones are thrown (one upwards and other downwards) with the same velocity u and they reach the earth surface after t_1 and t_2 seconds respectively, then
- (a) $t = t_1 - t_2$ (b) $t = \frac{t_1+t_2}{2}$ (c) $t = \sqrt{t_1 t_2}$ (d) $t = t_1^2 t_2^2$
57. A bullet moving with a speed of 100 ms^{-1} can just penetrate two planks of equal thickness. Then the number of such planks penetrated by the same bullet when the speed is doubled will be
- (a) 4 (b) 8 (c) 6 (d) 10

Chemistry (7)

58. The number of atoms in 0.1 mole of a triatomic gas is :
- (a) 6.026×10^{22} (b) 1.806×10^{23} (c) 3.6×10^{23} (d) 1.8×10^{22}
59. If 1.5 moles of oxygen combine with Al to form Al_2O_3 . The mass of Al in grams. (Atoms mass of Al = 27) used in the reaction is :
- (a) 2.7 (b) 54 (c) 40.5 (d) 81
60. Which of the following reactions is not correct according to the law of conservation of mass ?
- (a) $2 \text{ Mg(s)} + \text{O}_2\text{(g)} \rightarrow 2 \text{ MgO(s)}$ (b) $\text{P}_4\text{(s)} + 5\text{O}_2\text{(g)} \rightarrow \text{P}_4 \text{O}_{10}\text{(s)}$
(c) $\text{C}_3\text{H}_8\text{(g)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2 + \text{H}_2\text{O(g)}$ (d) $\text{CH}_4\text{(g)} + 2\text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + 2 \text{ H}_2\text{O(g)}$
61. What is the wavelength of light. Given energy = $3.03 \times 10^{-19} \text{ J}$, $h = 6.6 \times 10^{-34} \text{ JS}$, $c = 3.0 \times 10^8 \text{ m/s}$?
- (a) 6.54 nm (b) 654 nm (c) 0.654 nm (d) 65.4 nm
62. The following quantum numbers are possible for how many orbitals ?
 $n = 3, l = 2, m = + 2$.
- (a) 1 (b) 2 (c) 3 (d) 4
63. At 25°C and 730 mm pressure, 380 mL of dry oxygen was collected. If the temperature is constant, what volume will oxygen occupy at 760 mm pressure ?
- (a) 621 mL (b) 569 mL (c) 449 mL (d) 365 mL
64. Which of the following has electrovalent linkage ?
- (a) CaCl_2 (b) AlCl_3 (c) SiCl_4 (d) PCl_5

Biology (6)

65. Which of the following statements is correct?
- (a) Prokaryotic cells have a well defined nucleus
(b) Eukaryotic cells have no mitochondria
(c) Prokaryotic cells having mitochondria
(d) Eukaryotic cells having membrane bound organelles

66. In which of the following subphases of meiosis crossing over takes place?
(a) Leptotene (b) Pachytene (c) Zygotene (d) Diplotene
67. DPT vaccine is used to immunise infants against
(a) diphtheria, whooping cough and tetanus
(b) cholera and typhoid
(c) influenza
(d) pneumonia
68. A common characteristic of all vertebrates is (without exception)
(a) presence of well developed skull
(b) division of body into head, neck, trunk and tail
(c) presence of two pairs of functional appendages
(d) body is covered with an exoskeleton
69. Organic matter present in soil is called
(a) fertiliser (b) humus (c) living matter (d) non-living matter
70. Heterosis is
(a) hybrid sterility (b) hybrid vigour (c) hybrid incompatibility (d) hybrid in viability