VIJAY
EDUCATION ACADEMY
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VTSE - 2015
Scholarship & Talent Reward Exam.

SAMPLE PAPER

Max. Marks : 180

Duration : 120 Minutes

Please read the instructions carefully. You are allotted additional 5 minutes specifically for this purpose.

CLASS VIII

Write your Name and VTSE SAMPLE PAPER Student Registration No. In the space provided below.

NAME : _____

REG. NO. : ☐☐☐☐☐☐☐☐☐☐

GENERAL INSTRUCTIONS EXAMINATION HALL

A. General :

1 This Question Paper contains 60 questions. Please check before starting to attempt. The question paper consists **4 parts Mathematics(1 to 30), Chemistry(31 to 40), Physics (41 to 50), Biology (51 to 60).**

2 Space is provided within question paper for rough work hence no additional sheets will be provided.

3 Blank paper, clipboard, log tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are **not** allowed inside the examination hall.

4 Do not Tamper / mutilate the **ORS** or this booklet.

5 SUBMIT the ORS to the invigilator after completing the test & take away the test paper with you.

6 Any student found/reported using unfair means to improve his/her performance in the test, shall be disqualified from VTSE.

7 Objective Response Sheet (ORS), is provided separately.

8 Do not break the seals of the question-paper booklet before instructed to do so by the invigilators.

B. How to fill Objective Response Sheet (ORS) for filling details marking answers:

9 Use only HB Pencil/Blue or Black ball point pen for filling the ORS. Do not use Gel/lnk/Felt pen as it might smudge the ORS.

10 Write your VTSE Student Registration No. in the boxes given at the top left corner of your ORS with blue/black ball point pen. Also, darken the corresponding bubbles with HB Pencil/Blue or Black ball point pen only.

11 If any student does not fill his/her VTSE Student Registration No. correctly and properly, then his/her ORS will not be checked/ evaluated.

12 Since it is not possible to erase and correct pen filled bubble, you are advised to be extremely careful while darken the bubble corresponding to your answer.

13 Neither try to erase / rub / scratch the option nor make the Cross (X) mark on the option once filled. Do not scribble, smudge, cut, tear, or wrinkle the ORS. Do not put any stray marks or whitener anywhere on the ORS.

14 If there is any discrepancy between the written data and the bubbled data in your ORS, the bubbled data will be taken as final.

C. Question paper format and Marking scheme :

15 In **Section I** (Total Marks : 90), for each question you will be **awarded 3 marks** if you darken **ONLY** the bubble corresponding to the correct answer and **zero marks** if no bubble is darkened. In all other cases, **minus one (–1) mark** will be awarded.

16 In **Section II** (Total Marks : 30), for each question you will be **awarded 3 marks** if you darken **ALL** the bubble(s) corresponding to the correct answer(s) and **zero marks** if no bubble is darkened. In all other cases, **minus one (–1) mark** will be awarded.

17 In **Section III** (Total Marks : 30), for each question you will be **awarded 3 marks** if you darken **ONLY** the bubble corresponding to the correct answer and **zero marks** if no bubble is darkened. In all other cases, **minus one (–1) mark** will be awarded.

18 In **Section IV** (Total Marks : 30), for each question you will be **awarded 3 marks** if you darken **ONLY** the bubble corresponding to the correct answer and **zero marks** if no bubble is darkened. In all other cases, **minus one (–1) mark** will be awarded.

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SECTION – I

MATHEMATICS

1. Clousure property for rational numbers is satisfied in case of

   (a) Addition   (b) Subtration   (c) Multiplication   (d) All of these

2. Multiplicative inverse of zero is

   (a) zero   (b) 1   (c) not define   (d) none of these

3. If $3^{x-1} + 3^{x+1} = 90$, then the value of $(x + 2)$

   (a) 3   (b) 5   (c) 0   (d) 1

4. The total area of a circle and a rectangle is equal to 1166 cm^2. The diameter of the circle is 28 cm. What is the sum of the circumference of the circle and the perimeter of the rectangle if the length of the rectangle is 25 cm ?

   (a) 182 cm   (b) 184 cm   (c) 186 cm   (d) 188 cm

5. If $3^{2x-y} = 27$ and $3^{x+y} = 729$, then $(2x)$ is

   (a) 3   (b) 0   (c) 6   (d) 4

6. The value of $\dfrac{4^{1000} + 2^{1999}}{2^{2000} - 2^{1998}}$ is

   (a) 2   (b) 4   (c) 2^4 (d) $\dfrac{10}{3}$

7. Three solid cubes of sides 1 cm, 6 cm and 8 cm are melted to form a new cube. Find the curved surface area of cube so formed.

   (a) $486 \, cm^2$ (b) $324 \, cm^2$ (c) $289 \, cm^2$ (d) $386 \, cm^2$

8. The ratio of radii of two cylinders is 2 : 3 and heights are in the ratio 3 : 2. The ratio of their volume is

   (a) 2 : 3   (b) 3 : 2   (c) 4 : 9   (d) 9 : 4

9. A square garden measuring 8m on a side is surrounded by a 2m wide path. What is the area of the path?

   (a) $28 \, m^2$ (b) $36 \, m^2$ (c) $80 \, m^2$ (d) $100 \, m^2$

10. If $x + \dfrac{1}{x} = 2$, find the value of $x^4 + \dfrac{1}{x^4}$

    (a) 2   (b) 4   (c) 16   (d) 8

11. If $3x + 4y = 20$, then $12x + 16y$ is equal to

(a) 20   (b) 40   (c) 60   (d) 80

12. If $3(2x - 3)^2 = 507$, then $2x + 3$

(a) 9   (b) 11   (c) 19   (d) 17

13. If $\sqrt{0.01 + \sqrt{0.0064}} = 3x$, then the value of $2x$ is

(a) 0.3   (b) 0.1   (c) 0.2   (d) None of these

14. If $\sqrt{1 + \dfrac{25}{144}} = \left(1 + \dfrac{x}{12}\right)$, then the value of $3x + 5$

(a) 1   (b) 3   (c) 5   (d) 8

15. The number of sides of a regular polygon whose each exterior angle has a measure of 30° is

(a) 10   (b) 12   (c) 14   (d) 16

16. One factor of $4x^2 - 8x + 3$ is

(a) $2x + 3$ (b) $2x + 1$ (c) $2x - 1$ (d) $2x - 5$

17. L.C.M $(\pi, 1)$ [L.C.M. of π and 1]

(a) 1   (b) π (c) not define   (d) None of these.

18. L.C.M. $\left(\dfrac{1}{7}, \dfrac{2}{7}\right)$

(a) $\dfrac{1}{7}$ (b) $\dfrac{2}{7}$ (c) 7   (d) None of these

19. Reducing the expression $\dfrac{ab + b^2}{ab} + \dfrac{ab - b^2}{ab - a^2}$ to lowest terms, we get

(a) $\dfrac{a}{b}$ (b) $\dfrac{b}{a}$ (c) 1   (d) 0

20. One factor of $x^2 - 2xy - z^2 + y^2$ is

(a) $(x + y + z)$ (b) $x + y - z$ (c) $x - y + z$ (d) None of these

21. If $\left(y^2 + 4y + 7\right)\left(y^2 - 4y + 7\right) = p^2 - q^2$, then q is equal to

(a) $y^2 - 4y$ (b) $y^2 + 7$ (c) 4y   (d) None of these

22. Find x if $\dfrac{2^{x-3}}{8^{-x}} = \dfrac{32}{4^{\frac{x}{2}}}$

(a) $\dfrac{11}{5}$

(b) $\dfrac{6}{5}$

(c) $\dfrac{16}{5}$

(d) $\dfrac{8}{5}$

23. The base of an isosceles triangle is 4cm and its area is 16 cm^2. If one of the two equal sides of the triangle is k cm, the approximate value of k – 1.24 is

(a) 8 cm

(b) 7 cm

(c) 10 cm

(d) 9 cm.

24. What percentage of a day is six hours and 45 minutes?

(a) 7.218%

(b) 8.3%

(c) 28.125%

(d) None of these

25. A trader purchases 70 kg of tea at ₹ 15 per kg and 30 kg of tea at ₹ 18.50 per kg. If the packing charges are 2 percent, then at what price he must sell the mixture of two to gain 15% ?

(a) ₹ 18.82 per kg

(b) ₹ 18 per kg

(c) ₹ 18.50 per kg

(d) ₹ 17.80 per kg

26. The ratio between the curved surface area and the total surface area of right circular cylinder is 1 : 2. Find the ratio between the height and radius of the cylinder.

(a) 1 : 2

(b) 2 : 1

(c) 1 : 1

(d) None of these

27. The area of the base of a right circular cylinder is 616 cm^2 and its height is 2.5 cm. Curved surface area of the cylinder.

(a) $220\ cm^2$

(b) $350\ cm^2$

(c) $640\ cm^2$

(d) None of these

28. If the radius of the base of a right circular cylinder is halved keeping the height same, what is the ratio of the volume of reduced cylinder to that of the original.

(a) 4 : 1

(b) 1 : 4

(c) 2 : 1

(d) 1 : 2

29. The difference between outside and inside surfaces of a cylindrical metallic pipe 14 cm long is 44 cm^2. If the pipe is made of 99 cm^3 of metal, find the outer radius of the pipe.

(a) 2.5

(b) 3.5

(c) 2

(d) 4.5

30. If the area of a rhombus be 24 cm^2 and one of its diagonals be 4 cm, find the side of rhombus.

(a) $2\sqrt{10}\ cm$

(b) $3\sqrt{10}\ cm$

(c) $4\sqrt{10}\ cm$

(d) $8\sqrt{10}\ cm$

SECTION – II
CHEMISTRY

31. Which statement is not correct.

    (a) monomer represent smallest repeating unit

    (b) Oligomer represent repetition of few monomeric unit

    (c) Copolymer represent union of more than one kind of monomeric unit

    (d) Homopolymer represent polymer containing even number of monomeric unit.

32. Teacher asked few questions to guess the name of the non metals. Which of the answer was right

    I   Non metal used in fertilizers as a major constituent K

    II Non metal used in water purification - Cl

    III Non metal used as an antiseptic – I

    IV Non metal used in match box – P, S

    (a) II, III & IV   (b) III only   (c) III and IV   (d) I, III only

33. Which statement is not correct about Teflon

    (a) It is also known as polytetra fluoro ethylene   (b) It is used for making non stick cookwares

    (c) It is used to store aqua regia   (d) chemically it is ester

34. Different components of petroleum are separated by fractional distillation. What is the correct sequence of fractions obtained in the fractionating column from bottom to top.

    (a) Petroleum gas, lubricating oil, Kerosene, gasoline.   (b) Lubricating oil, Kerosene, gasoline, Petroleum gas

    (c) Petroleum gas, gasoline, Kerosene, lubricating oil   (d) Gasoline, Kerosene, Petroleum gas, Lubricating oil

35. The flame of a Bunsen burner is

    X   when the air hole is closed and

    Y   when the air hole is open, then

    X and Y is respectively.

    (a) yellow, blue   (b) blue, green,   (c) yellow, blue   (d) blue, yellow

36. Which of the following statements are not true

    I   The non luminous zone has highest temperature

    II   The substances which vaporise during burning, give flames

    III Yellow flames are ideal for heating

    IV   Luminous zone contains unburnt carbon particles.

    (a) I, II & III   (b) I, II & IV   (c) II, III, IV   (d) III

37. Good fuels have.

  (a) low ignition temperature and high carbon content

  (b) high ignition temperature and high calorific values

  (c) low ignition temperature and high calorific value

  (d) high ignition temperature and law calorific value

38. Which statement is not correct

  (a) Natural gas contains mostly methane

  (b) formula of water gas is $CO + H_2$

  (c) formula of producer gas is $CO + N_2$

  (d) formula of semi water gas is $CO + \frac{1}{2} H_2$

39. Which one is not correct

  (a) only two elements are liquid at room temperature

  (b) copper is good electrical conductor than Fe

  (c) Copper evolve H_2 gas when react with conc H_2SO_4

  (d) Na is stored under kerosene whereas white p is stored under water

40. Viscose Rayon is

  (a) synthetic fibre   (b) semisynthetic fibre   (c) Natural fibre   (d) None of these

SECTION – III

PHYSICS

41. The atmospheric pressure :

(a) increases with altitude   (b) decreases with altitude   (c) remains same   (d) None of these

42. One atmosphere equals :

(a) 76 mm   (b) 76 cm   (c) 76 m   (d) 76 j

43. Which of the following is not the unit of pressure ?

(a) Pascal   (b) N/m^2 (c) $Kg\ m\ s^{-2}$ (d) $Kg\ m^{-1}\ s^{-2}$

44. On increasing temperature the speed of sound :

(a) increases   (b) decreases

(c) increases then decreases   (d) decreases then increases

45. Noise pollution can lead to :

(a) heart attack   (b) stroke   (c) low blood pressure   (d) high blood pressure

46. Which of the given below animals cannot hear subsonic sounds :

(a) leopard   (b) deer   (c) both of these   (d) None of these

47. Which of the following is a self adjusting force :

(a) static friction   (b) rolling friction   (c) sliding friction   (d) none of these.

48. Two carts of unequal masses use similar tyres. If they are moving at the same speed, the minimum distance of stopping is

(a) same for both carts   (b) dependent on road   (c) greater for heavier cart   (d) greater for lighter cart

49. The coefficient of limiting friction (μ) depends on force of limiting friction (F) & normal reaction (R) as :

(a) $\mu = F \times R$ (b) $\mu = F\ /\ R$ (c) $\mu = F^2 R$ (d) $\mu = F^2\ /\ R$

50. The angle of friction (θ), depends upon coefficient of limiting friction (μ) as :

(a) $\mu = \sin\theta$ (b) $\mu = \cos\theta$ (c) $\mu = \sec\theta$ (d) $\mu = \tan\theta$

SECTION – IV

BIOLOGY

51. The rearing of honey-bees on large scale is called

    (a) pisciculture   (b) dairying   (c) poultry farming   (d) apiculture

52. The following is an antibiotic

    (a) Sodium bicarbonate   (b) Streptomycin   (c) Alcohol   (d) yeast

53. The process of conversion of sugar into alcohol is called

    (a) nitrogen fixation   (b) moulding   (c) fermentation   (d) infection

54. Which of the following is a useful bacterium ?

    (a) Staphylococci   (b) Clostridium botulinum   (c) Salmonella   (d) Lactobacillus

55. In which female reproductive organ does the embryo get embedded ?

    (a) oviduct   (b) ovaries   (c) uterus   (d) vagina

56. The number of nuclei present in a zygote is

    (a) none   (b) one   (c) two   (d) four

57. Reproductive age in women starts when their

    (a) menstruation starts   (b) breasts start developing   (c) body weight increases   (d) height increases

58. A tadpole develops into an adult frog by the process of

    (a) fertilization   (b) metamorphosis   (c) embedding   (d) budding

59. Which of the following is the control centre of the cell ?

    (a) mitochondria   (b) nucleus   (c) protoplasm   (d) Cytoplasm

60. The largest cell in our body is

    (a) Nerve cell   (b) Ova   (c) Sperm   (d) R.B.Cs

ANSWER KEY

MATHEMATICS

1	2	3	4	5	6	7	8	9	10
D	C	B	A	C	A	B	A	C	A

11	12	13	14	15	16	17	18	19	20
D	C	C	D	B	C	C	B	C	C

21	22	23	24	25	26	27	28	29	30
C	D	A	C	A	C	A	B	A	A

CHEMISTRY

31	32	33	34	35	36	37	38	39	40
D	A	D	B	A	D	C	D	C	B

PHYSICS

41	42	43	44	45	46	47	48	49	50
B	B	C	A	D	C	A	A	B	D

BIOLOGY

51	52	53	54	55	56	57	58	59	60
D	B	C	D	C	B	A	B	B	A