DR. A. QADEER SCHOLARSHIP EXAM

GSI SHAHEEN DHANBAD

(Global School Of India Campus)

SESSION 2026-27

SHAHEEN GROUP OF INSTITUTIONS

Date:_____ **Total Marks: 400**

Class XI Science - English Medium

Do not open this Test Booklet until you are asked to do so.

Important Instructions:

1. **The Answer Sheet is inside this Test** Booklet, take out the Answer Sheet and fill in the particulars carefully with blue/black ball point pen only.
2. The test is of 2 hour's duration and the Test Booklet contains 100 multiple-choice questions (four options with a single correct answer) from (Physics-20) (Chemistry-20) (Mathematics-20) (Biology-20) (Mental Ability-20) Candidates are advised to read all questions in each subject before they start attempting the question paper.
3. Each question carries 4 marks. For each correct response, the candidate will get 4 marks, for wrong answer -1 marks.
4. Use Blue/Black Ball point Pen only for writing particulars on this pages/marking response on Answer sheet.
5. Rough work is to be done in the space provided for this purpose in the Test Booklet itself.
6. On completion of the test candidate must hand over the test sheet and Answer Sheet (OMR) to the Invigilator before leaving the Room/Hall.
7. Candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
8. Use of white fluid for correction NOT permissible on the Answer Sheet.
9. Each candidate must show on demand his/her Admit card to the Invigilator.
10. No candidate, without special permission of the centre Superintendent & Invigilator, would leave his/her seat.
11. Candidates should not leave the Examination Hall Without handing over their Test Paper & Answer sheet to the Invigilator on duty and sign (with time) the Attendance Sheet.
13. Use of Electronic/Manual Calculator is prohibited.
14. Candidates are governed by all Rules and Regulations of the examination with regards to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per the Rules and Regulations of this examination.
15. **No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.**

Name of the Candidate (In Capitals):_____Class: _____

Roll Number:_____

In Word: _____

Centre of Examination (In Capitals):_____

Candidate's Signature: _____Invigilator's Signature: _____

CHEMISTRY

1. 56 g **of** red hot iron is treated with 36 mL water.The weight of Fe_3O_4 produced would be (Fe = 56)

(1) 77.33 g (2) 11.6 g (3) 232 g (4) 58 g

2. Maximum number of spectral lines in infrared region when electrons of a sample of hydrogen atom in 5^{th} excited state return to their ground state–

(1) 15 (2) 9 (3) 6 (4) 10

3. Which of the following is the correct order of size of the given species:

(1) $Cl > Cl^- > Cl^+$ (2) $Cl^+ > Cl^- > Cl$

(3) $Cl > Cl^+ > Cl^-$ (4) $Cl^- > Cl > Cl^+$

4. Which of the following molecule contains $p\pi - p\pi$ & $p\pi - d\pi$ bond.

(1) SO_2 (2) SO_3 (3) $H_4P_2O_7$ (4) All of these

5. Equilibrium :$2SO_3(g) \rightarrow 2SO_2(g) + O_2(g)$ is not affected by

(1) Temperature change (2) Pressure change

(3) Volume change (4) Addition of inert gas at constant T & 6.

6. pH of 0.1M NaA solution is : Given : $(K_b)_{A^-} = 10^{-9}$

(1) 5 (2) 11 (3) 9 (4) 8

7. Which of the following alkali metals burns in air to form a monoxide?

(1) Na (2) Li (3) K (4) Cs

8. How many grams of bromine will react with 21 grams of C_3H_6 ?

(1) 320 (2) 240 (3) 160 (4) 80

9. Choose the correct sequence of size of the elements of 13^{th} group.

(1) B < Al < Ga < In < Tl (2) B < Ga < Al < In < Tl

(3) B > Al > Ga > In > Tl (4) B < Ga < Al < Tl < In

10. Which of the following molecules has highest dipole moment ?

(1) BF_3 (2) NH_3 (3) NF_3 (4) B_2H_6

11. A gas diffuse 1/3 times as fast as hydrogen. Its molecuar weight is

(1) 9 (2) 18 (3) 3 (4) $3\sqrt{2}$

12. Which of the following has the highest solubility product?

(1) KOH (2) CsOH (3) LiOH (4) RbOH

13. Molarity of KOH solution, prepared by dissolving 5.6 g in water to form 250 ml solution, will be–

(1) 0.1 M (2) 0.4 M (3) 0.2 M (4) 1.0 M

14. Correct order of bond angle is :-

(1) $OF_2 < H_2O < NH_3 < Cl_2O$ (2) $OF_2 < NH_3 < Cl_2O < H_2O$

(3) $OF_2 < Cl_2O < H_2O < NH_3$ (4) $Cl_2O < OF_2 < H_2O < NH_3$

15. Dominance of strong repulsive forces among the molecules of the gas (Z = compressibility factor)

(1) Depends on Z and indicated by Z = 1 (2) Depends on Z and indicated by Z > 1

(3) Depends on Z and indicated by Z < 1 (4) is independent of Z16.

16. K_1 and K_2 are equilibrium constant for reactions (1) and (2)

$N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$ ...(1)

$NO(g) \rightleftharpoons 1/2\ N_2(g) + 1/2\ O_2(g)$ ...(2)

Then,

(1) $K_1 = \left(\frac{1}{K_2}\right)^2$ (2) $K_1 = K_2^2$

(3) $K_1 = \frac{1}{K_2}$ (4) $K_1 = (K_2)°$.

17. The correct expression for Ostwald's dilution law is

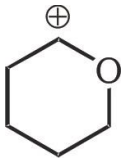
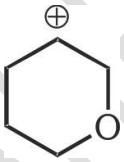
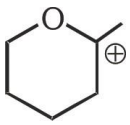
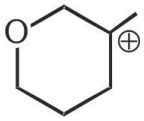
(1) $K_a = \frac{\alpha}{V}$ (2) $K_a = \alpha^2 \times V$

(3) $K_a = \frac{\alpha^2}{(1-\alpha)V}$ (4) $K_a = \frac{\alpha^2}{(1-\alpha)C}$

18. Hydrogen gas produced by heating NaOH with which metal :-

(1) Ag (2) Cu (3) Zn (4) Au

19. Most stable carbocation among following is–

(1)  (2)  (3)  (4) 

20. Which of the following dissolve (s) in excess of NaOH solution ?

(1) $AgNO_3$ (2) $Zn(OH)_2$

(3) $BaSO_4$ (4) $Hg_2(NO_3)_2$

(Attempt any one Maths or Biology)

MATHEMATICS

21. If sum of the coefficient of the first, second and third terms of the expansion of $\left(x^2 + \frac{}{}\right)$, $m \in N$ is 46, then the coefficient of the term that does not contain x is:

(1) 84 (2) 92 (3) 98 (4) 106

22. In a triangle ABC (with usual notations), if ex-radii r_1, r_2, r_3 are in H.P., then $\frac{a+c}{b}$ is:

(1) 1 (2) 2 (3) 3 (4) 4

23. If $(a+ib)^5 = \alpha + i\beta$ then $(b+ia)^5$ is equal to:

(1) $\beta - i\alpha$ (2) $\beta + i\alpha$ (3) $\alpha - \beta$ (4) $-\alpha - i\beta$

24. The orthocentre of the triangle formed by the lines xy = 0 and x + y = 1 is :

(1) $\left(\frac{1}{2}, \frac{1}{2}\right)$ (2) $\left(\frac{1}{3}, \frac{1}{3}\right)$ (3) (0, 0) (4) $\left(\frac{1}{4}, \frac{1}{4}\right)$

25. If straight line y = 2x + k cuts the circle $4x^2 + 4y^2 - 4x - 8y - 15 = 0$ exactly two real distinct points, then number of integral values of k are :

(1) 11 (2) 10 (3) 9 (4) 8

26. If $\sin x = \cos^2 x$, then $\cos^2 x\,(1 + \cos^2 x)$ equals to :

(1) 0 (2) 1 (3) 2 (4) none of these

27. Let $i = \sqrt{-1}$ then complex number $\left(\frac{1}{1+i} - \frac{1}{2+i}\right)\left(\frac{4-3i}{1+3i}\right)$ equals :

(1) $-\frac{1}{2}$ (2) $\frac{1}{2}$ (3) $\frac{i}{2}$ (4) $-\frac{i}{2}$

28. The sum of an infinitely decreasing G.P. is 4 and the sum of cubes of its terms is equal to $\frac{64}{7}$. The ratio of its 5^{th} to 7^{th} term is :

(1) 2 (2) 3 (3) 4 (4) 5

29. Coefficient of t^{12} in $(1 + t^2)^6(1 + t^6)(1 + t^{12})$ is -

(1) 24 (2) 21 (3) 22 (4) 23

30. The sum of first n terms of series 1.4 + 3.7 + 5.10 +.....is :

(1) $\frac{n^2(n+1)^2}{4}$ (2) $\frac{n^2(4n^2+5n-1)}{2}$

(3) $\frac{n(4n^2+5n-1)}{2}$ (4) $\frac{4n^2+5n-1}{2}$

31. The value of sum $\sum_{r=1}^{10}(2^{r-1} + 8r - 3)$ is equal to :

(1) 1343 (2) 1234 (3) 1334 (4) 1433

32. If $e^{i\theta} = \cos\theta + i\sin\theta$, then for the ΔABC, $e^{iA} \cdot e^{iB} \cdot e^{iC}$ is equal to :

(1) $-i$ (2) 1 (3) -1 (4) none of these

33. If α, β $(\alpha < \beta)$, are the roots of the equation, $x^2 + bx + c = 0$, where $c < 0 < b$, then :

(1) $0 < \alpha < \beta$ (2) $\alpha < 0 < \beta < |\alpha|$

(3) $\alpha < \beta < 0$ (4) $\alpha < 0 < |\alpha| < \beta$

34. The least integral value of p for which $2x^2 - 4x + p + 5 > 0$ for all $x \in R$, is :

(1) -3 (2) -2 (3) -1 (4) 0

35. Let a circle $C_1 \equiv x^2 + y^2 - 4x + 6y + 1 = 0$ and circle C_2 is such that it's centre is image of centre of C_1 about x-axis and radius of C_2 is equal to radius of C_1, then area of C_1 which is not common with C_2 is :

(1) $10\pi + 3\sqrt{3}$ (2) 10π (3) $8\pi - 6\sqrt{3}$ (4) $8\pi + 6\sqrt{3}$

36. a, b, c are the sides of a triangle ABC which is right angled at C, then the minimum value of $\left(\frac{c}{a} + \frac{c}{b}\right)^2$ is :

(1) 0 (2) 4 (3) 6 (4) 8

37. If the lines represented by $2x^2 + 8xy + ky^2 = 0$ are coincident, then the values of k is :

(1) 8 (2) -8 (3) 4 (4) -4

38. If $y = \frac{x^2 + 2x - 11}{x - 3}$, $x \in R$ then Range of y is–

(1) $R - (-12, -4)$ (2) $(-\infty, 2) \cup (12, \infty)$

(3) $(-\infty, 4] \cup [12, \infty)$ (4) $(-\infty, -4] \cup [4, \infty)$

39. If $|x + 2| < 4$. Then x is :

(1) $(-6, 2)$ (2) $(-6, 0)$ (3) $(-6, 2]$ (4) $(0, 2)$

40. The value of $\frac{\cos^3 10^\circ + \sin^3 20^\circ}{\cos 10^\circ + \sin 20^\circ}$ is equal to :

(1) $\frac{1}{2}$ (2) $\frac{3}{4}$ (3) $\frac{2}{3}$ (4) $\frac{1}{4}$

41. Which one is incorrect statement

(1) Only human have self consciousness

(2) Consciousness is the defining property of living organisms

(3) Metabolic reaction cannot demonstrated in-vitro (in-cell-free-system)

(4) Metabolism is the combination of Catabolism & Anabolism.

42. The largest, most general group in the classifications used by biologists is the

(1) Kingdom

(2) Class

(3) Order

(4) Species

43. Double fertilization is found in–

(1) Angiosperms (2) Gymnosperms

(3) Pteridophytes (4) Bryophytes

44. Heterospory is universal feature of–

(1) Algae (2) Bryophyte

(3) Pteridophyte (4) All seeded plant

45. Endosperm of gymnosperms and angiosperms show ploidy–

(1) 2n, 2n (2) 3n, n (3) n, n (4) n, 3n

46. Variation in length of the filament of stamen can be seen in–

(1) Salvia (2) Mustard

(3) Chinarose (4) Both (1) and (2)

47. How many given plants have adventitious root– Maize, Carrot, Sugarcane, Onion

(1) 1 (2) 2 (3) 4 (4) 3

48. Exarch and polyarch vascular bundles occur in

(1) Monocot stem (2) Monocot root

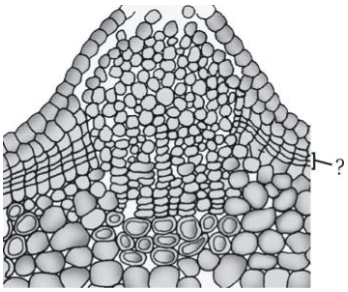
(3) Dicot stem (4) Dicot root

49. Phloem parenchyma is absent in

(1) Dicot stem (2) Monocot stem

(3) Dicot root (4) Dicot leaf

50. What is asked in the following diagram



(1) Lentical (2) Periderm

(3) Phellogen (4) Vascular cambium

51. A multinucleate cell is called

(1) Coenobium (2) Thallus (3) Synchytrium (4) Coenocyte

52. Enzymes of electron transport system are located in

(1) Matrix of mitochondria (2) Outer membrane of mitochondria

(3) Inner membrane of mitochondria (4) Stroma of chloroplast

53. On which concentration of $Mg^{\oplus 2}$ ions dimmer of ribosome formed

(1) 0.0001 M (2) 0.001 M (3) 0.01 M (4) 0.10 M

54. Meiosis occurs in

(1) Haploid individuals (2) Diploid individuals

(3) Both (1) and (2) (4) In bacteria only

55. Spindle apparatus is formed during which stage of mitosis

(1) Prophase (2) Metaphase (3) Anaphase (4) Telophase

56. Lasso cells are found in–

(1) Ctenophora (2) Cnidaria

(3) Flatworms (4) Segmented worms

57. Kala-Azar is caused by–

(1) Plasmodium vivax (2) Trypanosoma gambiense

(3) Trypanosoma cruzi (4) Leishmania donovani

58. Slipper animalcule is–

(1) Paramoecium (2) Amoeba (3) Euglena (4) Vorticella

59. Wheel organ which helps in the ingestion of food is found in–

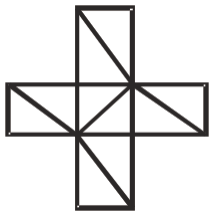
(1) Myxine (2) Ascidia

(3) Balanoglossus (4) Amphioxus

60. Flame cells are present for excretion in–

(1) Hemichordata (2) Urochordata (3) Cephalochordata (4) Tunicata

61. How many triangles are there in the following figure.



(1) 11 (2) 14 (3) 16 (4) 7

62. The time on the watch is quarter to three. If the minute hand points of North-East, in which direction does the hour hand point?

(1) North-West

(2) South-West

(3) South-East

(4) North-East

63. Find the angle between the two hands of a clock at 15 minutes past 4 O'clock:

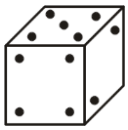
(1) 38.5°

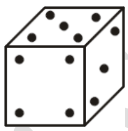
(1) 36.5°

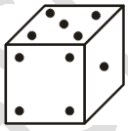
(2) 37.5°

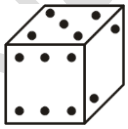
(3) None of these

64. If the total of dots on opposite faces of a cubical block is always 7, find the figure which is correct:

(1) 

(2) 

(3) 

(4) 

65. In a certain code **nee tim see** means **how are you; ble nee see** means **where are you**. What is the code for **where** ?

(1) nee (2) tim

(3) see (4) ble

66. Deepak is brother of Ravi. Reena is sister of Atul. Ravi is son of Reena. How is Deepak related to Reena?

(1) Son (2) Brother (3) Nephew (4) Father

67. A cube is coloured red on three adjacent faces. It is then cut (once horizontally and once vertically) into four cuboids of equal size. Each of these cuboids is coloured green on all the uncoloured faces and is again cut (once horizontally and once vertically) into four cuboids of equal size.

68. How many cuboids have three red faces each ?

(1) 1 (2) 2 (3) 4 (4) 8

69. If O = 16, FOR = 42, then what is FRONT equal to?

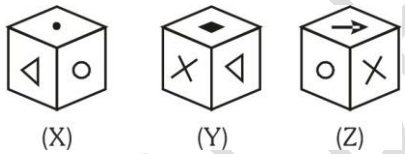
(1) 61 (2) 65 (3) 73 (4) 78

70. If the day before yesterday was Thursday, when will Sunday be?

(1) Today (2) Two days after today

(3) Tomorrow (4) Day after tomorrow

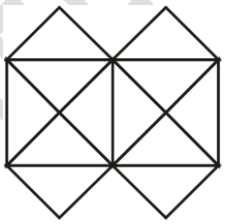
71. A cube has six different symbols drawn over its six faces. The symbols are dot, circle, triangle, square, cross and arrow. Three different positions of the cube are shown in figures X, Y and Z.



72. Which symbol is opposite the dot?

(1) Circle (2) Triangle (3) Arrow (4) Cross

73. Count the number of triangles in the given figure.



(1) 12 (2) 20 (3) 22 (4) 24

74. A man leaves for his office from this house. He walks towards East. After moving a distance of 20m, he turns South and walks 10 m. Then he walks 35 m towards the West and further 5m towards the North. He then turns towards East and walks 15 m. What is the straight distance (in metres) between his initial and final positions?

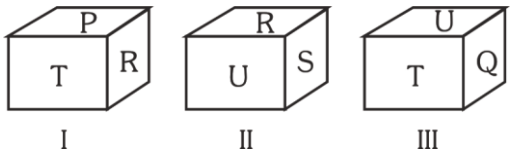
(1) 0 m (2) 5 m

(3) 10 m (4) None of these

75. How many times do the two hands of a clock coincide in a 24 hour day?

(1) 24 (2) 20 (3) 12 (4) 22

From the given three positions of a single dice, find the letter at the face opposite to the face having letter Q.



I II III

(1) P

(2) R

(3) S

(4) T

76. In a certain code language, STRING is written as % = *–$ ÷ and PRAISE as?*@–%×.
How will the word GRAPES be written in that code language?

(1) ÷*@×?% (2) ÷@*?×%

(3) ÷*@?×% (4) ÷*–?×%

77. In the given question one number is wrong in the series, find out the wrong number.
225, 289, 338, 374, 397, 415, 424

(1) 289 (2) 338

(3) 374 (4) 397

78. In the given question, two statements followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the conclusions logically follows from the two given statements.

Statements : All men are married.
Some man are educated.

Conclusions : I. Some married are educated.
II. Some educated are married.

(1) If only conclusion I follows (2) If only conclusion II follows
(3) If either I or II follows (4) If both I and II follow

79. Each of the six faces of a cube of 5 cm edge length, has yellow border of 1 cm width and rest square region of 3 cm × 3 cm is painted pink. This cube is now cut into 125 smaller cubes of each side 1 cm. The smaller cubes so obtained are now separated.
How many smaller cubes have one face colured pink and an adjacent face yellow:

(1) 0 (2) 1 (3) 2 (4) 4

80. March 5, 1999 was on Friday, what day of the week will be on March 5, 2000?

(1) Monday (2) Tuesday (3) Sunday (4) None of these

81. Assuming that the mass m of the largest stone that can be moved by a flowing river depends upon the velocity v of the water, its density ρ and the acceleration due to gravity g. Then m is directly proportional to–

(1) V^3 (2) V^4 (3) V^5 (4) V^6

82. A 150 m long train is moving with a uniform velocity of 45 km/h. The time taken by the train to cross a bridge of length 850 meters is–

(1) 56 sec (2) 68 sec (3) 80 sec (4) 92 sec

83. A ball of mass 1 kg is thrown vertically up another ball of mass 2 kg is thrown at angle $\theta = 45°$. Both of them remain in air for same time period. The ratio of height attained by them is –

(1) 2 : 1 (2) 1 : 2

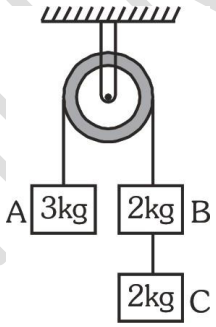
(3) 1 : cos θ (4) 1 : 1

84. A rocket consumes fuel at the rate of 100 kg/s. The exhaust gases are ejected at a speed of 5×10^4 m/s relative to rocket. Neglecting the effect of gravity, the thrust experienced by the rocket is–

(1) 5×10^2 N (2) 5×10^4 N

(3) 5×10^6 N (4) 50 N

85. In the arrangement shown in figure the tension in the string connected between B and C is:



(1) g/7 (2) 6g/7 (3) 12g/7 (4) 24g/7

86. If a force of 250 N acts on a body, the momentum acquired is 125 kg-m/s. What is the period for which force acts on the body

(1) 0.2 s (2) 0.5 s (3) 125 × 250 s (4) 0.25 s

87. The power of a pump, which can pump 500 kg of water to height 100 m in 10 s is

(1) 75 kW (2) 25 kW (3) 50 kW (4) 500 Kw

88. A particle moves along x-axis from x = 0 to x = 5 metre under the influence of a force F = 7 – 2x + $3x^2$. The work done (in joule) in the process is–

(1) 70 (2) 135 (3) 270 (4) 35

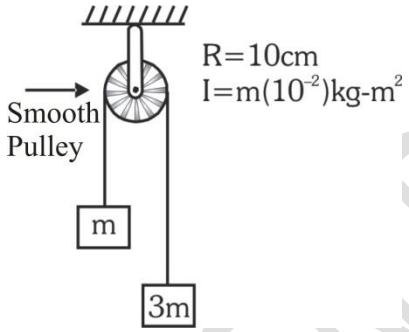
89. A spring with spring constants k when compressed by 1cm, the potential energy stored is U. If it is further compressed by 3 cm, then change in its potential energy is–

(1) 3U (2) 9U (3) 8U (4) 15U

90. A force F = ($3x\hat{i} + 4\hat{j}$) Newton (where x is in metres) acts on a particle which moves from a position (2m, 3m) to (3m, 0m). Then the work done is

(1) 7.5J (2) –12J (3) –4.5 J (4) +4.5 J

91. Find acceleration of blocks



(1) $\frac{g}{3}$ (2) $\frac{g}{2}$ (3) $\frac{g}{4}$ (4) $\frac{2g}{3}$

92. If linear density of a rod of length 3m varies as $\ell = 2 + x$ and one end of rod is at origin then the position of the centre of gravity of the rod from origin is :

(1) $\frac{7}{3}m$ (2) $\frac{12}{7}m$ (3) $\frac{10}{7}m$ (4) $\frac{9}{7}m$

93. By applying a constant torque a wheel is turned 2 revolution in 8 sec. The angular velocity of wheel after 10 sec from start. (rad/sec)

(1)) $\frac{4}{5}\pi$ (2) 2π (3) $\frac{5}{4}\pi$ (4) $\frac{5}{8}\pi$

94. Two drops of water which are falling in air are having mass ratio 1 : 27, what will be ratio of their terminal speed–

(1) 1 : 9 (2) 1 : 4 (3) 1 : 3 (4) 3 : 1

95. Water is flowing with a velocity of 2 m/s in a horizontal pipe with cross-sectional area decreasing from 2×10^{-2} m^2 to 0.01 m^2 at pressure 4×10^4 pascal. The pressure at smaller cross-section in pascal will be–

(1) 32 (2) 3.4 (3) 3.4×10^4 (4) 3.4×10^5

96. A rectangular container with base 5 cm × 10 cm contains 5 kg of water. What is the pressure exerted by water at the bottom of the container–

(1) 1 atm
(2) 10^4 Pa
(3) 490 N/m^2
(4) 900 Pa

97. Bernoulli's theorem is based on the law of conservation of–

(1) Mass
(2) Energy
(3) Momentum
(4) None of these

98. In unform circular motion which of the following quantity is not constant?

(1) Speed
(2) Magnitude of acceleration
(3) Velocity
(4) None of these

99. Direction of small angular displacement is same as that of

(1) Angular acceleration
(2) Angular velocity
(3) Velocity
(4) None of these

100. In uniform circular motion which of the following quantity is constant?

(1) Acceleration
(2) Velocity
(3) Speed
(4) None of these