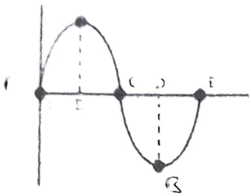# XI AMU
Admission Test Paper 2016-17

1. The area under speed-time graph represents a physical quantity which has a unit of
   - (a) m
   - (b) m^2
   - (c) ms^{-1}
   - (d) ms^2

2. Which of the following statement is incorrect regarding an electromagnet?
   - (a) Magnetism of an electromagnet can be switched on or off as desired.
   - (b) Magnetism depends on current passing through the coils of an electromagnet
   - (c) The strength of an electromagnet can be changed by changing the number of turns in its coil
   - (d) The polarity of an electromagnet is fixed and can not be changed

3. A 4 Ω resistance is doubled on it, then its new resistance will be
   - (a) 4Ω
   - (b) 2 Ω
   - (c) 1 Ω
   - (d) 8 Ω

4. An electron enters in a magnetic field at right angle (see figure below). The direction of force acting on the electrons will be
   - (a) to the right
   - (b) to the left
   - (c) out of the page
   - (d) into the page

5. A positively charged particle projected towards west is deflected towards north by a magnetic field. The direction of magnetic field is
   - (a) towards south
   - (b) towards east
   - (c) downward
   - (d) upward

6. The phenomenon of electromagnetic induction is
   - (a) the process of changing a body
   - (b) the process of generating magnetic field due to current passing through a coil
   - (c) producing induced current in a coil due to relative motion between coil and magnet
   - (d) the process of rotating a coil of an electric motor

7. A strong bar magnet is placed vertically above a horizontal wooden board. The magnetic lines of force will be
   - (a) only in horizontal plane around the magnet
   - (b) only in vertical plane around the magnet
   - (c) in horizontal as well as in vertical planes around the magnet
   - (d) in all the planes around the magnet

8. The diagram given below represents magnetic field caused by a current carrying conductor which is
   - (a) a long straight wire
   - (b) a circular coil
   - (c) a solenoid
   - (d) a short straight wire

9. An object is put in three liquids having different densities one by one. The object floats with $\frac{1}{9}$, $\frac{2}{11}$ and $\frac{3}{7}$ parts of its volume outside the surface of liquids of densities d_1, d_2 and d_3 respectively. Which of the following is the correct order of the densities of the three liquids?
   - (a) $d_1 > d_2 > d_3$
   - (b) $d_2 > d_3 > d_1$
   - (c) $d_1 < d_2 < d_3$
   - (d) $d_3 > d_2 > d_1$

10. Four balls A, B, C & D displace 10 ml, 24 ml, 15 ml and 12 ml of a liquid respectively, when immersed completely. The ball which will undergo the maximum apparent loss in weight will be
    - (a) A
    - (b) B
    - (c) C
    - (d) D

11. The gravitational force between two objects is F. How will this force change when distance between them is reduced to half?
    - (a) F/4
    - (b) 4F
    - (c) 2F
    - (d) F/2

12. Which among the following bodies is more energetic?
    - (a) mass M & speed 2V
    - (b) mass M & speed V

(1)

(c) mass 2M & speed V

(d) mass 3M & speed V/2

13. A rod of mass 'm' & length 'ℓ' is lying on a horizontal table. Work done in making it stand on one end will be

(a) $mg\ell$

(b) $mg\ell/2$

(c) $\dfrac{mg\ell}{4}$

(d) $2mg\ell$

14. If the sound wave is produced by vibrating tuning fork shown in figure, then half of time period is represented by

(a) AB

(b) BD

(c) DE

(d) AE

15. A boy 1.5 m tall with his eye level at 1.38 m stands before a mirror fixed on a wall. What should be the minimum length of the mirror so that he can view himself fully?

(a) 1.5 m

(b) 3.0 m

(c) 0.75 m

(d) 1.38 m

16. An erect image 3 times of the size of the object is obtained with a concave mirror of radius of curvature 36 cm. What is the position of the object from the mirror?

(a) 3 cm   (b) -6 cm   (c) 18 cm   (d) -12 cm

17. The power of a plano-convex lens of refractive index 1.5 and radius of curved surface 15 cm would be

(a) 3.33 dioptre

(b) 1.5 dioptre

(c) 30 dioptre

(d) 15 dioptre

8. A change of state from solid to gas is called

(a) Fusion

(b) Fission

(c) Sublimation

(d) Evaporation

. The number of particles in 8g O_2 is

(a) 1.75×10^{23}

(b) 1.89×10^{23}

(c) 1.99×10^{23}

(d) 1.51×10^{23}

. In periodic table, period II has following elements

(a) Li, Na, K, Rb, Cs, Fr

(b) B, Be, O, N, Li, C

(c) Be, Mg, Ca, Sr, Ba, Ra

(d) Na, Mg, Al, Si, P, S

21. Orange juice was diluted 10 times, its pH will

(a) increase

(b) decrease

(c) remain unchanged

(d) will become neutral

22. What is the correct order of relative activities of metals?

(a) K>Na>Ca>Mg

(b) Na>K>Ca>Mg

(c) Na>K>Mg>Ca

(d) Mg>Ca>K>Na

23. How many moles of 3.6 g of water will contain?

(a) 0.2 moles

(b) 0.5 moles

(c) 1.0 moles

(d) 2.0 moles

24. Which one of the following is not possible?

(a) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

(b) $Pb + FeSO_4 \rightarrow PbSO_4 + Fe$

(c) $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

(d) $Zn + MgSO_4 \rightarrow ZnSO_4 + Ag$

25. Milky colour formation in lime water on passing CO_2 gas is due to

(a) Formation of $CaCO_3$

(b) Formation of $Ca(HCO_3)_2$

(c) Formation of CaO

(d) Formation of $CaCl_2$

26. Which of the following statement is not true about metal oxides?

(a) Most of the metal oxides are basic in nature

(b) Most of the metal oxides are insoluble in water

(c) Most of the metal oxides are acidic in nature

(d) Some metal oxides are amphoteric in nature

27. For a reaction $3MnO_2(s) + 4X(s) \rightarrow 3Mn(\ell) + 2X_2O_3(s)$, which of the following metals substitute 'X'?

(a) $A\ell$ (b) Ag   (c) Cu   (d) Hg

28. How will you name the compound $CH_3 - CH = CH_2$?

(a) Propyne

(b) Ethyne

(c) Propene

(d) Butene

29. Functional group in Butanone is

(a) $-CHO$

(b) $COOH$

+(c) >C=O   (d) OH

30. The metals stored in oil
   - (a) Zn, Li, Na
   - (b) Li, K, Na
   - (c) Li, K, P_4
   - (d) S_8, P_4, K

31. Electrolysis of Brine gives at anode
   - (a) H_2 gas
   - (b) Cl_2 gas
   - (c) O_2 gas
   - (d) H_2O

32. Removal of oil and dirt from cloth by soap and detergent is due to
   - (a) Hydrophobic group
   - (b) Hydrophilic group
   - (c) Hydrophobic and Hydrophilic group
   - (d) ionic group

33. Which of these allotropes of carbon is formed of hexagonal arrays being placed in layers?
   - (a) Diamond
   - (b) C-60 fullerene
   - (c) Graphite
   - (d) Both (a) and (b)

34. The compound showing highest boiling point
   - (a) CH_3COOH
   - (b) $CH_3 - CH_2 - CH_3$
   - (c) CH_3OH
   - (d) $CHCl_3$

35. The correct order of the biological hierarchy from "Kingdom of Species" is
   - (a) Kingdom, Order, Family, Class, Phylum, Genus, Species
   - (b) Kingdom, Phylum, Order, Class, Family, Genus, Species
   - (c) Kingdom, Class, Order, Phylum, Family, Genus, Species
   - (d) Kingdom, Phylum, Class, Order, Family, Genus, Species

36. Members of Phylum Arthropoda lack one of the following features
   - (a) Jointed legs
   - (b) Closed type of circulatory system
   - (c) Blood filled coelomic cavity
   - (d) Exoskeleton

37. Roundworms infect human by
   - (a) Penetration of skin by infective larvae
   - (b) Infective larvae reaching gastro-intestinal tract through improperly cooked pork
   - (c) Eggs present in contaminated food and water
   - (d) Autoinfection

38. Staphylococci is a gram-positive bacteria which stains
   - (a) purple
   - (b) red
   - (c) brown
   - (d) pink

39. The correct difference between prokaryotic and eukaryotic cells is
   - (a) In prokaryotes vacuoles are absent while they are present in eukaryotes
   - (b) Microtubulus are present in prokaryotes while absent in eukaryotes
   - (c) Prokaryotes have smaller nucleus while eukaryotes have bigger nucleus
   - (d) Lysosomes are absent in eukaryotes while they are present in prokaryotes

40. Which is the correct order of increasing geological time scale for vertebrate evolution?
   - (a) Cenozoic, Mesozoic, Paleozoic, Precambrian
   - (b) Cenozoic, Paleozoic, Mesozoic, Precambrian
   - (c) Precambrian, Cenozoic, Paleozoic, Mesozoic
   - (d) Precambrian, Paleozoic, Mesozoic, Cenozoic

41. The genotype for the blood group AB is
   - (a) $I^A I^o$
   - (b) $I^A I^B$
   - (c) $I^B I^o$
   - (d) $I^o I^o$

42. Which of the following alternatives is incorrect?
   - (a) Jersey & Browa Swiss are breeds of cattle
   - (b) Aseel and Leghorn are breeds of poultry
   - (c) Pomphret and Bombay duck are domestic fowl
   - (d) Rohu and Catla are fresh water fishes

43. Choose the correct statement
   - (a) Primary consumers are key link between producers and rest of consumers
   - (b) Producers convert chemical energy into light energy
   - (c) Available energy gradually decreases from higher to lower trophic levels
   - (d) Food webs are rare in natural ecosystems

44. Select the most appropriate statement
   - (a) In flowering plants pollen grains and ovules are spatially separated

(b) In flowering plants pollen grains and ovules are temporally separated

(c) In flowering plants pollen grains are not indispensable for sexual reproduction

(d) In flowering plants pollen tube facilitates the delivery for female germ cells to pollen grains

45. To form *Polygonum* type of embryo sac megaspore nucleus undergoes
   (a) 3-Meiotic divisions
   (b) 3-Mitotic divisions
   (c) 2-Meiotic divisions
   (d) 2-Mitotic divisions

46. In a dihylicid cross of yellow and round seeds and green and wrinkled seeds, F_2 seeds showed the four possible combinations in the ratio of
   (a) $1:1:1:1$
   (b) $9:3:3:1$
   (c) $1:2:2:1$
   (d) $9:6:1:1$

47. The correct sequence in the pathway of 'Reflex Arc" is
   (a) Receptor $\rightarrow$ Sensory neuron $\rightarrow$ Relay neuron $\rightarrow$ Motor neuron $\rightarrow$ Effector
   (b) Receptor $\rightarrow$ Relayneuron $\rightarrow$ Sensory neuron $\rightarrow$ Motor neuron $\rightarrow$ Effector
   (c) Receptor $\rightarrow$ Motor neuron $\rightarrow$ Relay neuron $\rightarrow$ Sensory neuron $\rightarrow$ Effector
   (d) Receptor $\rightarrow$ Sensory neuron $\rightarrow$ Motor neuron $\rightarrow$ Relay neuron $\rightarrow$ Effector

48. Kidney has large numbers of filteration units called as
   (a) Flatiron
   (b) Natron
   (c) Neuron
   (d) Nephron

49. The elongated plant cell with irregularly thickened cell wall belongs to
   (a) Collenchyma
   (b) Parenchyma
   (c) Fibres
   (d) Sclerenchyma

50. The breakdown of pyruvate using oxygen takes place in
   (a) Mitochondria
   (b) Chloroplast
   (c) Ribosomes
   (d) Lysosomes

51. If $a = 6 - \sqrt{35}$, then the value of $a^2 - \dfrac{1}{a^2}$ is
   (a) $2\left(6 + \sqrt{35}\right)^2$
   (b) $4\left(6 + \sqrt{35}\right)^2$

   (c) $-24\sqrt{35}$
   (d) $24\sqrt{35}$

52. Which of the following is an irrational number between 2 and 3?
   (a) 2.357357
   (b) 2.101001000101...........
   (c) 2.05131313..............
   (d) 2.579

53. Consider the following statements:
   Let $P(x)$ and $Q(x)$ be two different polynomials with real coefficients of degrees m and n respectively, where $m \geq 0$ and $n \geq 0$, then
   Statement I : deg $(P(x)-Q(x)) \leq d$.
   Statement II: deg $(P(x), Q(x)) = m + n$
   Where 'd' is defined as d
   $\qquad = m$ if $m > n$
   $\qquad = n$ if $n > m$
   $\qquad = m$ or n if $m = n$
   and 'deg' stands for degree of the polynomial.
   In your opinion
   (a) only statement II is true
   (b) Both the statements I & II are true
   (c) Both statements I & II are false
   (d) Only statement I is true

54. If the polynomial $2x^4 + 7x^3 - 5x^2 - 16$ is divided by $x^2 + 4x + k$, according to the division algorithm for the polynomials, the remainder comes out to be $x + a$, then k and a will be respectively
   (a) 3, -1
   (b) -3, -1
   (c) -3, 1
   (d) 3, 1

55. In a triangle ABC, one of the angles is 25% more than the sum of other two. Then the largest angle of the triangle is
   (a) 120^0
   (b) 110^0
   (c) 100^0
   (d) None of these

56. The perimeter of an isosceles triangle is 20 cm. If each equal side is twice the base, then the length of the three sides of the triangle in cm are
   (a) 6, 6, 8
   (b) 4, 4, 12
   (c) 7, 7, 6
   (d) 8, 8, 4

57. For what value of 'a' does the following pair of linear equations is inconsistent

$2x + 3x - 7$ (c) $3x + x + 1$) $x - 8x^2 + 1$

(a) 8   (b) 6   (c) 7   (d) 8

58. A train covered a certain distance at a uniform speed. If the train would have been 10 km hr faster, it would have taken 2 hours less than the scheduled time. If the train were slower by 10 km hr, it would have taken 3 hours more than the scheduled time. The distance covered by the train will be

(a) 1300 km   (b) 1000 km

(c) 800 km   (d) 600 km

59. The roots of the quadratic equation $25x^2 + 20x + 7 = 0$ are

(a) real roots   (b) no real roots

(c) real and unequal   (d) real and equal

60. The real value of p for which the equation $x^2 + 2x + (p + 1) = 0$ has real roots is

(a) 2, -3   (b) -2, 3

(c) 2, 3   (d) no real value

61. The altitude of a right triangle is 5 cm less than the base 1 cm and the hypotenuse is 6 cm. The quadratic representation of above situation is

(a) $2x^2 - 10x - 11 = 0$ (b) $x^2 - 5x - 6 = 0$

(c) $x^2 - x - 29 = 0$ (d) $2x^2 + 10x - 11 = 0$

62. If $\log_{10} 2, \log_{10}(2^x - 1)$ and $\log_{10}(2^x + 3)$ are three consecutive terms of an arithmetic progression, then

(a) $x = 0$ (b) $x = 1$

(c) $x = \log_2 5$ (d) $x = \log_{10} 2$

63. Consider the following statements:

If a, b, c, d, e are in an arithmetic progression, then

Statement 1: $\frac{a}{b}, \frac{b}{c}, \frac{c}{d}, \frac{d}{e}$ will be in an arithmetic progression, where $x \neq 0$

Statement II: There exists b_1, c_1, d_1 such that a, b_1, c_1, d_1, e are in the arithmetic progression where $b \neq b_1, c \neq c_1, d \neq d_1$

In your opinion

(a) Statement I is true and statement II is false

(b) Statement I is false and statement II is true

(c) Both statements I and II are true

(d) Both statements I and II are false

64. In the adjoining figure ABC is an equilateral triangle and C is the centre of the circle. A and B lie on the circle. What is the area of the shaded region, if the diameter of the circle is 28 cm?


(a) $(10x^2 + 49\sqrt{3})\ m^2$

(b) $(10x^2 - 49\sqrt{3})\ m^2$

(c) $(10\pi - 48\sqrt{3})\ m^2$

(d) None of these

65. If the radius of cylinder is doubled, but the height is reduced by 50%, the percentage change in volume is

(a) 50%   (b) 75%

(c) 100%   (d) 25%

66. The mean of 7 observations is 8. A new observation 16 is added. The mean of eight observations is

(a) 12   (b) 9

(c) 8   (d) 24

67. The following frequency distribution

x:	12	15	17	20	24
y:	3	7	9	10	4

is classified as

(a) Continuous distribution

(b) Discrete distribution

(c) Cumulative frequency distribution

(d) Both (a) & (b)

68. In an equilateral triangle ABC, D is a point on side BC such that $BD = \frac{1}{3} BC$, then the ratio $AD^2 : AB^2$

(a) 9 : 7   (b) 1 : 3

(c) 3 : 1   (d) 7 : 9

69. Which one is not the Euclid's postulate?

(a) A circle can be drawn with any centre

(b) A straight line may be drawn from any one point to any other point

(c) A terminated line can be produced definitely

(d) All right angles are equal to one another

(5)

70. In the given figure, side QP and RQ of ΔPQR are produced to points S and T respectively. If ∠PRQ=65° and ∠PQR=70°, then the ∠SPR is
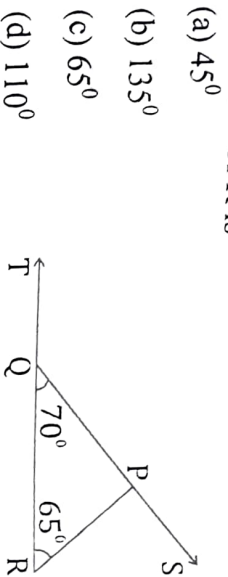
(a) 45°
(b) 135°
(c) 65°
(d) 110°

71. The moon is about 384000 km from the earth and its path around earth is circular. The moon takes 24 hours to complete one orbit. The speed at which the moon orbits the earth in km/hr is
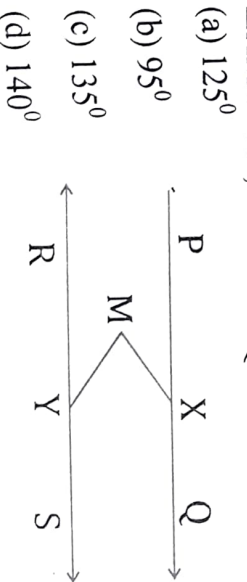(a) 16000
(b) 100571
(c) 50240
(d) 12560

72. ABCD is a parallelogram in which P and Q are mid points of opposite sides AB and CD. If AQ intersects DP at S and BQ intersects CP at R, then the total number of parallelograms are
(a) 2
(b) 5
(c) 6
(d) 4

73. If $\cot A + \cos 75° = \tan 5° + \sin 15°$ when ∠A lies between 0° and 45°, then the value of A is
(a) 85°
(b) 90°
(c) 95°
(d) 70°

74. In the figure, if PQ‖RS, ∠MYR = 40° and ∠XMY=85°, then ∠MXQ is

(a) 125°
(b) 95°
(c) 135°
(d) 140°

75. From each corner of a square of side 7cm, a quadrant of a circle of radius 2 cm is cut and also a circle of diameter 3 cm is cut, the area of remaining portion of the square is (in cm²)
(a) 9.714
(b) 38.795
(c) 29.375
(d) 19.625

76. A triangular park ABC has sides in the ratio of 3 : 5 : 7 and its perimeter is 300 m. A farmer has to put a fence all around it with

(6)

barbed wire at the rate of Rs. 30 per meter leaving a space 3.5 m wide for gate on one side. The area of park and cost of fencing is respectively.
(a) 1500√3 m² and Rs. 8895
(b) 1500√15 m² and Rs. 8895
(c) 1500√15 m² and Rs. 9895
(d) 1500√3 m² and Rs. 9895

77. The ratio in which the line segment joining the points (-3,10) and (6,-8) is divided by (-1,6) is
(a) 2 : 7
(b) 7 : 2
(c) 1 : 1
(d) 3 : 7

78. Which of the following figure lie on the same base and between the same parallels
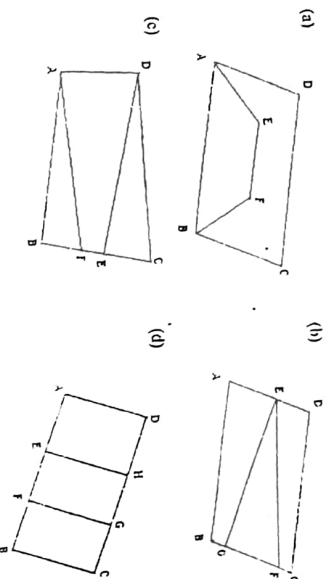
79. The solution of $\dfrac{5\cos^2 60 - 4\sec^2 30 - \tan^2 45}{\sin^2 30 + \cos^2 30}$

(a) $\dfrac{61}{12}$
(b) $\dfrac{43 - 24\sqrt{3}}{11}$
(c) $-\dfrac{61}{12}$
(d) $-\dfrac{12}{61}$

80. If A (-4, -2), B(-3, -5), C(3, -2) and D(2, 3) are the vertices of a quadrilateral, then the area of quadrilateral ABCD is (in square units)
(a) 53
(b) 28
(c) 19
(d) 32

81. Who among the following was conferred with the Indira Gandhi award for national integration on October 31, 2015?
(a) C.N.R. Rao
(b) E. Sreedharan
(c) Karan Singh
(d) P.V. Rajagopal

82. Who among the following is the author of Dreaming Big My Journey to Connect India released in October 2015

(a) Som Mittal   (b) Sam Pitroda
(c) Kiran Karnik   (d) Rajendra Pawar

83. President of India, Pranab Mukharjee recently announced to impose the President's rule in which of the following state?
(a) Kerala   (b) Arunachal Pradesh
(c) Andhra Pradesh   (d) Karnataka

84. Which of the following award is given to recognize outstanding achievement in sports?
(a) Padma Shri   (b) Arjuna Award
(c) Param Vir Chakra   (d) Ashok Chakra

85. Azlan Shah Trophy is associated with which sports?
(a) Football   (b) Hockey
(c) Cricket   (d) Volleyball

86. Which of the following is the highest award in the field of literature in India?
(a) Sahitya Academmy Award
(b) Kabir Samman
(c) Padma Bhushan
(d) Gyanpith Award

87. India-born Novel Prize winner Venkat Ram Krishnan is associated with
(a) Physics   (b) Medicine
(c) Economics   (d) Chemistry

88. Which city has shut 2,500 firms this year to fight pollution?
(a) Singapore   (b) Delhi
(c) Shanghai   (d) Beijing

89. Full form of BRICS
(a) Brazil, Russia, India, China and South Africa
(b) Brazil, Russia, Indonesia, China and South Africa
(c) Brazil, Russia, India, Chad and South Africa
(d) Brazil, Russia, India, Chad and Singapore

90. The first women film star nominated to the Rajya Sabha was
(a) Nargis Dutt   (b) Shabana Azmi
(c) Madhubala   (d) Meena Kumari

91. In which year Sir Syed Ahmad Khan founded the Scientific Society?

92. Mohammadan Literary Society was founded in 1863 in Calcutta by
(a) Mirza Ghulam Ahmad
(b) Sir Syed Ahmad Khan
(c) Justic Mahmood
(d) Nawab Abdul Latif

(a) 1861   (b) 1862   (c) 1863   (d) 1865

93. Tansen was court musician of which king?
(a) Baz Bahadur   (b) Krishna Deva Rai
(c) Akbar   (d) Ibrahim Adil Shah

94. Who authored the book 'Humayun Nama'?
(a) Jahangir   (b) Abul Fazal
(c) Gulbadan Begum   (d) Noor Jahan

95. Amir Khusro was disciple of which Sufi Saint?
(a) Nizamuddin Aauliya
(b) Shaikh Burhan
(c) Baba Farid
(d) Qutban

96. The first woman who suckled the Prophet Muhammad (PBUH) after his mother, was
(a) Thuwaibah   (b) Hamima
(c) Shamama   (d) Hanna

97. What is the name of grandfather of Prophet Muhammad (PBUH)?
(a) Abdul Muttalib   (b) Abdul Lahab
(c) Abdul Obaid   (d) Abdul Talha

98. Who constructed Alai Darwaza, a gateway to the enclosure of the Quwat-ul-Islam mosque in Delhi?
(a) Jalaluddin Khilji   (b) Alauddin Khilji
(c) Ghayasuddin Khilji   (d) Ikhteyar Khilji

99. Itmaad-ud-daula, whose tomb is built at Agra, was father in law of which Mughal emperor?
(a) Akbar   (b) Jahangir
(c) Shahjahan   (d) Aurangzeb

100. At the age of twelve; prophet Muhammad (PBUH) travelled to Syria with his Uncle. What is the name of that Uncle?
(a) Abu Talha   (b) Abu Talib
(c) Abu Taif   (d) Abu Taba