

# A.M.U. Diploma Engg. 2016-2017

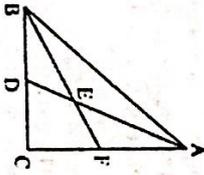
2. A constant force of 12N is exerted for 8 seconds on a 24 kg object initially at rest. the change in speed of this object will be:
  - (a) 4 m/s
  - (b) 2 m/s
  - (c) 0.5 m/s
  - (d) 16 m/s
2. A man weighing 70 kg carries a 30 kg box to the top of a building 20 m high. what is the work done by the man? (Take  $g = 9.8 \text{ ms}^{-2}$ ):
  - (a) 28000J
  - (b) 24600J
  - (c) 19600J
  - (d) 16900J
3. The radius of a planet is double that of the earth but their average densities are the same. If the escape velocities at the planet and at earth are  $v_p$  and  $v_e$  respectively, what would be relation between  $v_p$  and  $v_e$ ?
  - (a)  $v_p = \frac{1}{2} v_e$
  - (b)  $v_p = v_e$
  - (c)  $v_p = \frac{3}{2} v_e$
  - (d)  $v_p = 2v_e$
4. A rocket with a lift-off mass 20,000 kg is blasted upwards with an initial acceleration of  $5.0 \text{ ms}^{-2}$ . what is the initial thrust (force) of the blast:
  - (a)  $2.96 \times 10^5 \text{ N}$
  - (b)  $2.96 \times 10^4 \text{ N}$
  - (c)  $2.96 \times 10^3 \text{ N}$
  - (d)  $2.96 \times 10^6 \text{ N}$
5. Suppose there existed a planet that went around the sun twice as fast as the earth. What would be its orbital size as compared to that of the earth?
  - (a)  $\left(\frac{1}{5}\right)^{\frac{1}{3}}$
  - (b)  $\left(\frac{1}{3}\right)^{\frac{1}{3}}$
  - (c)  $\left(\frac{1}{2}\right)^{\frac{1}{3}}$
  - (d)  $\left(\frac{1}{7}\right)^{\frac{1}{3}}$
5. In a solar cell the energy from sun is converted into:
  - (a) Kinetic energy
14. Element present in largest amount in the earth crust :
  - (a) Helium
  - (b) Silicon
8. Convert 22gm of carbon dioxide into moles:
  - (a) 0.5 mole
  - (b) 0.05 mole
  - (c) 5.00 mole
  - (d) 50.00 mole
9. Isotopes of an element have:
  - (a) The same physical properties
  - (b) Different chemical properties
  - (c) Different number of neutrons
  - (d) Different atomic numbers
10. Rutherford's alpha-particle scattering experiment was responsible for the discovery of:
  - (a) Atomic nucleus
  - (b) Electron
  - (c) Proton
  - (d) Neutron
11. An element which can exhibit valencies of 3 and 5 can be:
  - (a) Aluminium
  - (b) Silicon
  - (c) Phosphorous
  - (d) Sulphur
12. The removal of oxygen from a substance is called:
  - (a) Oxidation
  - (b) Corrosion
  - (c) Reduction
  - (d) Rancidity
13. Modern periodic law is based on:
  - (a) Atomic weight of elements
  - (b) Atomic number of elements
  - (c) Size of elements
  - (d) Density of elements
15. How many electrons are present in the outermost shell of carbon
  - (a) 2
  - (b) 6
  - (c) 12
  - (d) 4
16. Which of the following method is not used for disinfection:
  - (a) UV irradiation
  - (b) Chlorination
  - (c) Osmosis
  - (d) Nano silver
17. Butanone is a four compound with functional group:
  - (a) Carboxylic acid
  - (b) Aldehyde
  - (c) Ketone
  - (d) Alcohol
18. If 1 ml of water contains 20drops, then number of molecules in a drop of water is :
  - (a)  $6.023 \times 10^{23}$
  - (b)  $1.376 \times 10^{26}$
  - (c)  $1.673 \times 10^{21}$
  - (d)  $4.346 \times 10^{20}$
19. Which of the elements has highest electron affinity:
  - (a) F
  - (b) Cl
  - (c) Br
  - (d) I
20. The ion of an element has three positive charges. Mass number of atom is 27 and the number of neutrons is 14. what is the number of electrons in the ion?
  - (a) 13
  - (b) 10
  - (c) 14
  - (d) 16
21. Mendeleev's periodic table was based on:
  - (a) Atomic numbers
  - (b) Atomic masses
  - (c) Colour of elements
  - (d) Occurrence of elements
22. Diamond and Graphite have:
  - (a) Different physical Properties
  - (b) Different chemical properties
23. In the context of redox reactions the removal of hydrogen from a substance is known as :
  - (a) Oxidation
  - (b) Dehydration
  - (c) Reduction
  - (d) Dehydrogenation
24. The micelles formed in soap stay as:
  - (a) Colloid
  - (b) True solution
  - (c) Suspension
  - (d) Precipitate
25. The empirical formula and molecular mass of a compound are  $\text{CH}_2\text{O}$  and 180g respectively. What will be the molecular formula of the compound:
  - (a)  $\text{C}_6\text{H}_{12}\text{O}_6$
  - (b)  $\text{CH}_2\text{O}$
  - (c)  $\text{C}_6\text{H}_{12}\text{O}_6$
  - (d)  $\text{C}_2\text{H}_4\text{O}_2$
26. The existence of electrons in an atom was shown by:
  - (a) E. Goldstein
  - (b) E. Rutherford
  - (c) J.J. Thomson
  - (d) Neils Bohr
27. The electron distribution in an aluminum atom is:
  - (a) 2, 8, 3
  - (b) 2, 8, 2
  - (c) 8, 2, 3
  - (d) 2, 3, 8
28. ABC and BDE are two equilateral triangles such that D is mid-point of BC and E is mid point of AB. Ratio of areas of triangle ABC and BDE is:
  - (a) 2:1
  - (b) 1:2
  - (c) 4:1
  - (d) 1:4
29. ABCD be a square of side 14 cm is made of paper sheet. Two half circular disc each of radius 7 cm are cut and separated. The area of remaining part is:
  - (a)  $196 \text{ cm}^2$
  - (b)  $154 \text{ cm}^2$
  - (c)  $42 \text{ cm}^2$
  - (d)  $124 \text{ cm}^2$
30. The angles of a triangle are in the ratio 5:3:7. Then triangle is:
  - (a) An acute angled triangle
  - (b) An obtuse angled triangle
  - (c) A right triangle
  - (d) An isosceles triangle

31. ABCD is trapezium in which  $AB \parallel CD$  and  $AB=2CD$ . If its diagonals intersect each other at O, then ratio of areas of triangles AOB and COD is:

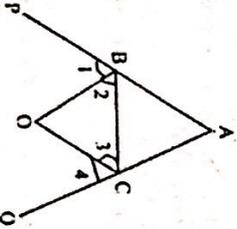
- (a) 1:2  
(b) 2:1  
(c) 1:4  
(d) 4:1

32. In  $\triangle ABC$ , AD is the median through A and E is the mid point of AD and BE produced meets AC in F. Then, AF is equal to:

- (a)  $\frac{1}{5} AC$   
(b)  $\frac{1}{4} AC$   
(c)  $\frac{1}{3} AC$   
(d)  $\frac{1}{2} AC$

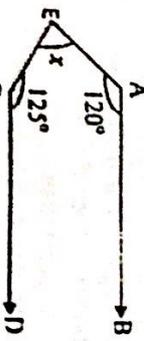


33. In the figure the sides AB and AC of a  $\triangle ABC$  are produced to P and Q respectively. The bisectors of  $\angle PBC$  and  $\angle QCB$  intersect at O. then  $\angle BOC$  is:



- (a)  $90^\circ + \frac{1}{2} \angle A$   
(b)  $90^\circ - \frac{1}{2} \angle A$

- (c)  $90^\circ + \angle A$   
(d)  $90^\circ - \angle A$



- (a)  $95^\circ$   
(b)  $110^\circ$   
(c)  $115^\circ$   
(d)  $135^\circ$

35. A sphere of radius r is melted to form cones having height and radius equal to that of the sphere. The number of cones is:

- (a) 4  
(b) 3  
(c)  $\frac{3}{4}$   
(d)  $\frac{4}{3}$

36. If p is an even positive integer q is an odd positive integer, then:

- (a)  $(p-1)q$  is even  
(b)  $p(q-1)$  is odd  
(c)  $(p-1)(q-1)$  is odd  
(d)  $p(q-1)$  is even

37. The hemisphere of radius 1, 2 and 1 respectively are melted to form a sphere. What is the radius of the new sphere formed?

- (a)  $r = \sqrt[3]{15}$  unit  
(b)  $r = \sqrt[3]{3}$  unit  
(c)  $r = \sqrt[3]{10}$  unit  
(d)  $r = \sqrt{5}$  unit

38. The coordinates of two points Q and R are respectively (6, 8) and (10, -4). If P is any point such that  $PQ=PR$  and that the area of  $\triangle PQR=20$  square units, then the possible coordinates of P are:

- (a) (11, 3) or (5, 1) (b) (11, 3) or (5, 1)  
(c) (3, 11) or (5, 1) (d) (3, 11) or (1, 5)

39. If  $\sqrt{2}ax + \sqrt{2}bx - \sqrt{2}c$  are the zeros of  $2x^2 - 3x^2 + 6x - 2$ . The remaining two zeros are:

- (a) -1, 1  
(b)  $\frac{1}{2}, 1$

- (c)  $-\frac{1}{2}, 2$   
(d) 1, 2

40. The ratio in which the line segment joining the points (2, 4) and (3, 8) is divided by the line  $x + 3y - 17 = 0$  is:

- (a) 3:10  
(b) 10:3  
(c) 1:3  
(d) 3:7

41. If the line segment joining the points P (a, 2a) and Q (2b, b) subtend an angle  $\theta$  at the origin, then  $\cos \theta$ :

- (a)  $\frac{4}{5}$   
(b)  $\frac{4a}{5b}$   
(c)  $\frac{3}{4}$   
(d)  $\frac{3}{5}$

42. The polar coordinates of the point  $(\sqrt{3}, 3)$  are:

- (a)  $2, \frac{\pi}{3}$   
(b)  $2\sqrt{3}, \frac{\pi}{6}$   
(c)  $2\sqrt{3}, \frac{\pi}{3}$   
(d)  $\sqrt{3}, \frac{\pi}{6}$

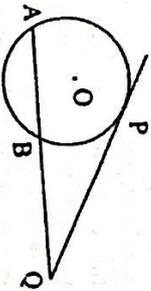
43. If  $(a^2 + b^2)x^2 - 2(ac + bd)x + c^2 + d^2 = 0$  has equal roots, then:

- (a)  $ab=cd$   
(b)  $ad=bc$   
(c)  $ab=\sqrt{bc}$   
(d)  $ab=\sqrt{cd}$

44. In a triangle, if square of one side is equal to sum of the squares of other sides, then:

- (a) Angle opposite the longest side is  $90^\circ$   
(b) Angle opposite the smaller side is  $90^\circ$   
(c) None angle is of  $90^\circ$   
(d) None of the above

45. 'O' is the centre of a circle. If tangent  $PQ=12$  cm and  $BQ=8$  cm then chord AB is:



- (a) 10 cm  
(b)  $4\sqrt{5}$  cm  
(c) 4 cm  
(d) 18 cm

46. Two tangents TP and TQ are drawn to a circle with centre O from external point T. the  $\angle PTQ$  equals:

- (a)  $\angle OPQ$   
(b)  $2\angle OPQ$   
(c)  $\frac{1}{2} \angle OPQ$   
(d)  $3\angle OPQ$

47. Three cubes of sides 8 cm, 6 cm and 1 cm are melted to form a new cube. The surface area of the cube is:

- (a)  $480 \text{ cm}^2$   
(b)  $486 \text{ cm}^2$   
(c)  $490 \text{ cm}^2$   
(d)  $500 \text{ cm}^2$

48. The straight lines AB and CD intersect one another at the point O. if  $\angle AOC + \angle COB + \angle BOD = 274^\circ$ , then  $\angle AOD$  is:

- (a)  $86^\circ$   
(b)  $90^\circ$   
(c)  $94^\circ$   
(d)  $137^\circ$

49. The parallelogram circumscribing a circle is a:

- (a) Square  
(b) Rhombus  
(c) Rectangle  
(d) Trapezium

50. Two circle of radius R and r touch each other externally and PQ is the direct common tangent. Then  $PQ^2$  is equal to:

- (a)  $R - r$   
(b)  $R + r$   
(c)  $2rR$   
(d)  $4rR$

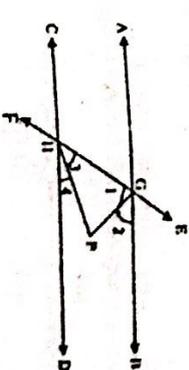
51. In rhombus ABCD, which of the following is true:

- (a)  $AC^2 + BD^2 = AB^2$   
(b)  $AC^2 + BD^2 = 2AB^2$   
(c)  $AC^2 + BD^2 = 4AB^2$   
(d)  $2(AC^2 + BD^2) = 3AB^2$

52. In a single throw of two dice, the probability of getting a total of 8 is:

- (a)  $\frac{1}{36}$   
(b)  $\frac{7}{36}$   
(c)  $\frac{5}{36}$   
(d) None of these

53. In the figure,  $AB \parallel CD$ . The bisector of the interior angles on the same side of the transversal EF intersect at P. then  $\angle GPH$  is:



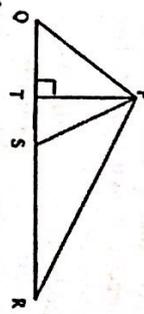
- (a) 30° (b) 60°  
(c) 90° (d) 110°

54. If the perimeter of a rectangle and a square each is equal to 80 cm and the difference of their areas is 100 sq. cm. The sides of the rectangle are:

- (a) 35 cm, 15 cm (b) 30cm, 10cm  
(c) 25cm, 15 cm (d) 28 cm, 12 cm

55. For a triangle ABC, which of the following is true?  
(a)  $BC^2 \cdot AB^2 = AC^2$   
(b)  $AB \cdot AC = BC$   
(c)  $(AB \cdot AC) > BC$   
(d)  $(AB \cdot AC) < BC$

56. In the figure, PS is the bisector of  $\angle QPR$  and  $PT \perp QR$ . Then  $\angle TPS$  is:



- (a)  $\frac{1}{2}(\angle Q - \angle R)$  (b)  $\frac{1}{2}(\angle Q + \angle R)$   
(c)  $(\angle Q + \angle R)$  (d)  $(\angle Q - \angle R)$

57. The diagonals of a cyclic quadrilateral intersect at the centre of the circle containing the quadrilateral. This quadrilateral is a:

- (a) Parallelogram (b) Rhombus  
(c) Rectangle (d) Square

58. For the value 30, 5, 21, 42, 13, 10, 27, 33, 17, 8 of a variable the median is:

- (a) 17 (b) 18  
(c) 19 (d) 21

59. From a square sheet of paper, a circle with maximum possible size is cut out. The area of the remaining portion is:  
(a) Equal to the area of the circle  
(b) Greater than half the area of the square  
(c) Less than  $\frac{1}{4}$  of the area of the square

(d) Greater than  $\frac{1}{4}$  of the area of the square

60. An exterior angle of a triangle is  $105^\circ$  and its two interior opposite angles are equal. Each of these angles is:

- (a)  $37\frac{1}{2}^\circ$  (b)  $52\frac{1}{2}^\circ$   
(c)  $72\frac{1}{2}^\circ$  (d)  $75^\circ$

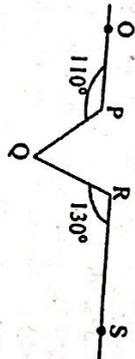
61. The value of  $\tan 23^\circ \tan 42^\circ \tan 48^\circ \tan 67^\circ$  is:

- (a)  $-\frac{1}{2}$  (b)  $\frac{1}{2}$   
(c)  $-1$  (d)  $1$

62. The value of  $(1 + \tan \theta + \sec \theta)(1 + \cot \theta - \operatorname{cosec} \theta)$  is:

- (a) 0 (b) -1  
(c) 1 (d) 2

63. In the figure if  $PQ \parallel RS$ ,  $\angle OPQ = 110^\circ$ ,  $\angle QRS = 130^\circ$ , then  $\angle PQR$  is equal to:



- (a)  $40^\circ$  (b)  $50^\circ$   
(c)  $60^\circ$  (d)  $70^\circ$

64. The point A (x, y) which is equidistant from the points B (a+b, a-b) and C (b-a, a+b) satisfies the relation:

- (a)  $ax + by = 0$  (b)  $ax - by = 0$   
(c)  $bx - ay = 0$  (d)  $bx + ay = 0$

65. A horse is tied to a peg at one corner of a square shaped grass field of side 15 m by means of a 5m long rope, the area of that part of the field in which the horse can graze is:

- (a)  $\frac{75}{4} \pi m^2$  (b)  $\frac{225}{4} \pi m^2$   
(c)  $25 \pi m^2$  (d)  $\frac{25}{4} \pi m^2$

66. Area of a sector of angle  $p^\circ$  of circle with radius R is:

- (a)  $\frac{p}{180} \times 2\pi R$  (b)  $\frac{p}{180} \times \pi R^2$   
(c)  $\frac{p}{360} \times 2\pi R$  (d)  $\frac{p}{720} \times 2\pi R^2$

67. If  $2\cos^2 \theta + \sin \theta = 2$  then  $\theta$  is:

- (a)  $0^\circ$  or  $15^\circ$  (b)  $0^\circ$  or  $30^\circ$   
(c)  $0^\circ$  or  $45^\circ$  (d)  $0^\circ$  or  $60^\circ$

68. Zik virus was discovered in which country?

- (a) Uganda (b) Kenya  
(c) Zaire (d) Togo

69. Who among the following was known as "Frontier Gandhi"?

- (a) Abul Kalam Azad  
(b) Shaikat Ali  
(c) Mohammad Ali  
(d) Khan Abdul Ghaffar

70. Vaccine for small pox was discovered by:

- (a) Edwared Jenner  
(b) Louis Pasteur  
(c) Alexander Fleming  
(d) Robert Bruce

71. Charles Dickens is the author of:

- (a) Great Expectations  
(b) The old Bachelor  
(c) Twelfth Night  
(d) A Divine Comedy

72. Who of the following is the creator of Star Wars?

- (a) Catherine Winder  
(b) Scott Murphy  
(c) George Lucas  
(d) Lawrence Kasdan

73. Who of the following has been honoured with the 2015 Jnanpith award?

- (a) Ramakant Rath  
(b) Raghuvver Chaudhary  
(c) Leeladhar Mandloi  
(d) Shamin Hanafi

74. The Government of India (GOI) has launched which scheme for online release of new LPG connections:

- (a) Sulabh (b) Saral  
(c) Smile (d) Sahaj

75. The National Game of Russia is:

- (a) Tennis (b) Badminton  
(c) Chess (d) Base Ball

76. Tennis player Novak Djokovic belongs to:

- (a) Russia (b) Serbia  
(c) Romania (d) France

77. Notes on which denomination has the portrait of Mahatma Gandhi printed on them?

- (a) 1000 rupee (b) 500 rupee  
(c) 100 rupee (d) All of the above

78. "Asbabe-Baghaate Hind" was written by:

- (a) Abul Kalam Azad  
(b) Sir Mohammad Khan  
(c) Meer Taje Meer  
(d) Sir Syed Ahmad Khan

79. Muslims first settled down in India in the:

- (a) 6<sup>th</sup> century (b) 7<sup>th</sup> century  
(c) 8<sup>th</sup> century (d) 9<sup>th</sup> century

80. Hazrat Mumhammad (PBUH) married first at the age of:

- (a) 20 (b) 24  
(c) 25 (d) 30

81. Who was famous with the title of "Ameen" in Makkah:

- (a) Hazrat Umaer Khattab (R.A.)  
(b) Hazrat Abu Bakr Siddiq (R.A.)  
(c) Hazrat Muhammad (SAW)  
(d) Hazrat Ali (RA)

82. Who was the mother of Fatima (R.A.)?

- (a) Hazrat Khadija  
(b) Hazrat Maria  
(c) Hazrat Zainab  
(d) Hazrat Ayesha

83. The entire quran was revealed in:  
 (a) 13 years (b) 10 years  
 (c) 20 years (d) 23 years
84. The place where Prophet Muhammad (SAW) stayed while migrating to Madinah:  
 (a) Cave Hira (b) Cave Thawr  
 (c) Syria (d) Ouba
85. Shahnama was written by:  
 (a) Khusrav (b) Qasim  
 (c) Firdausi (d) AbulFazal
86. Aligarh Muslim University was established in the year---- as University:  
 (a) 1940 (b) 1920  
 (c) 1900 (d) 1875
87. East India Company established its first factory in Surat in the year.....:  
 (a) 1600 (b) 1605  
 (c) 1608 (d) 1613
88. A ray of light of frequency  $5 \times 10^4$  Hz is passed through a liquid. The wavelength of light measured inside the liquid is found to be  $450 \times 10^9$  m. The refractive index of liquid is:  
 (a) 1.50 (b) 1.45  
 (c) 1.33 (d) 1.44
89. A ray of light passes from air to glass. The angle of incidence is  $45^\circ$  and the refractive index of glass is 1.5. Then the angle of refraction will be:  
 (a)  $\sin^{-1} \frac{3}{\sqrt{2}}$  (b)  $\sin^{-1} \frac{\sqrt{2}}{3}$   
 (c)  $\sin^{-1} \frac{1}{\sqrt{2}}$  (d)  $\sin^{-1} \frac{2}{\sqrt{3}}$
90. What will be the frequency of alternating current if its direction changes after every 0.01 s?:  
 (a) 100 Hz (b) 50 Hz  
 (c) 200 Hz (d) 500 Hz
91. An electric iron of resistance 20 ohms takes a current of 5 ampere. The heat developed in 30 s will be:
92. 20,000 joule (b) 15,000 joule  
 (c) 25,000 joule (d) 10,000 joule
93. The average speed of a bicyclist. If he covers first 5 km with a speed 15 km/hr and next 5 km with speed 10 km/hr, would be:  
 (a) 12.5 km/hr (b) 12 km/hr  
 (c) 15 km/hr (d) 6 km/hr
94. If a balloon is released after blowing it up, it flies away. This illustrates:  
 (a) Newton's first Law  
 (b) Newton's Second Law  
 (c) Newton's third law  
 (d) Gravitational Attraction
95. The main constituent of liquefied petroleum gas (LPG) is:  
 (a) Butane  
 (b) Propane  
 (c) Ethane  
 (d) Nitrogen
96. An object of 7 cm height is placed at a distance of 12 cm from a convex lens of focal length 8 cm. find the nature and height of the image.  
 (a) Virtual, 14 cm  
 (b) Real, 14 cm  
 (c) Real, 28 cm  
 (d) Virtual 28 cm
97. Which of the following is a non-renewable source of energy?  
 (a) Flowing water  
 (b) Sun  
 (c) Wind  
 (d) Natural gas
98. Which of the following is not an example of a bio-mass energy source?

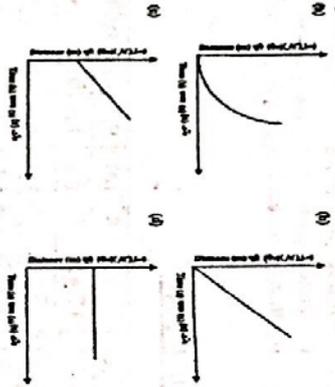
99. Which of the following cannot be used to make a lens?  
 (a) Water (b) Glass  
 (c) Plastic (d) Clay
100. Twinkling of stars is due to atmospheric :  
 (a) Dispersion of light by water droplets  
 (b) Refraction of light by different layers of layers of varying refractive indices  
 (c) Scattering of light by dust particles  
 (d) Internal reflection of light by clouds

**ANSWERS - 2016-2017**

1. (a)	2. (c)	3. (d)	4. (c)	5. (c)	6. (c)	7. (b)	8. (a)	9. (c)	10. (a)
11. (c)	12. (c)	13. (b)	14. (c)	15. (d)	16. (c)	17. (c)	18. (c)	19. (b)	20. (b)
21. (b)	22. (a)	23. (a)	24. (a)	25. (c)	26. (c)	27. (a)	28. (c)	29. (c)	30. (a)
31. (d)	32. (c)	33. (b)	34. (c)	35. (a)	36. (d)	37. (d)	38. (b)	39. (b)	40. (a)
41. (a)	42. (c)	43. (b)	44. (a)	45. (a)	46. (b)	47. (b)	48. (a)	49. (b)	50. (d)
51. (c)	52. (c)	53. (c)	54. (b)	55. (d)	56. (a)	57. (c)	58. (c)	59. (c)	60. (b)
61. (d)	62. (d)	63. (c)	64. (b)	65. (d)	66. (d)	67. (b)	68. (a)	69. (d)	70. (a)
71. (a)	72. (c)	73. (b)	74. (d)	75. (c)	76. (b)	77. (d)	78. (d)	79. (b)	80. (c)
81. (c)	82. (a)	83. (d)	84. del.	85. (c)	86. (b)	87. (c)	88. (c)	89. (b)	90. (b)
91. (b)	92. (b)	93. (b)	94. (c)	95. (a)	96. (b)	97. (d)	98. (c)	99. (d)	100. (b)

# A.M.U. Diploma Engg. 2015-2016

1. The nature of the distinct-time graph for a car moving with non-uniform speed is:



7. If the velocity of the car of mass 1500kg is increased from 30 km/hr to 60 km/hr, the work done will be (in KJ)?

- (a) 156.4 (b) 160  
(c) 52.5 (d) 208.4

8. An electric bulb of 60 W is used for 6 hours per day. The units of energy consumed in one day by the bulb are:

- (a) 0.6 (b) 0.36  
(c) 6 (d) 360

9. Stethoscope is used to:

- (a) Determine the depth of sea  
(b) Determine the sound waves  
(c) Listen sound with the body  
(d) Listen the sound in water

10. Sound waves with frequencies below the audible range are termed as:

- (a) Ultrasonic (b) Infrasonic  
(c) Noise (d) Pleasant

11. In figure, where the image can be seen:



- (a)  $AF_1$  (b) Between  $F_2$  &  $2F_2$   
(c)  $AF_2$  (d) At  $2F_2$

12. find the power of concave lens of focal length 2m.

- (a) +0.5 (b) -0.5  
(c) -0.2 (d) +0.2

13. The splitting of light into its component colours is called?

- (a) Dispersion (b) Splitting  
(c) Refraction (d) Tyndall

14. A person with myopia can see only:

- (a) Nearby objects  
(b) Distant objects  
(c) Neither nearby nor distant objects  
(d) None of the above

15. The symbol of closed switch in circuit diagram is:



16. Which of the following term represent electrical power in a circuit:

- (a)  $IR^2$  (b)  $I^2R^2$   
(c)  $V^2I$  (d)  $\frac{V^2}{R}$

17. Device used for producing electric current is called:

- (a) Galvanometer (b) Ammeter  
(c) Generator (d) Motor

18. A generator converts:

- (a) Kinetic energy into mechanical energy  
(b) Mechanical energy into electrical energy  
(c) Mechanical energy into kinetic energy  
(d) Electrical energy into kinetic energy

19. Which of the following is not an example of bio-mass energy source:

- (a) Wood (b) Gobar gas  
(c) Nuclear energy (d) Coal

20. Which of the following is used for making solar cell:

- (a) Copper (b) Silicon  
(c) Iron (d) Steel

21. Kinetic energy is maximum in:

- (a) Solid (b) Liquid  
(c) Gas (d) Same in all solids:

22. On increasing the temperature of solids:

- (a) Kinetic energy increase  
(b) Kinetic energy decreases  
(c) Kinetic energy remains constant  
(d) Kinetic energy first increase then decrease

23. Which of the following will show Tyndall Effect?

- (a) Salt Solution  
(b) Milk  
(c) Copper sulphate solution

24. Starch solution

25. If the dispersed phase is liquid and dispersed medium is solid then the type of colloid will be:

- (a) Aerosol (b) Gel  
(c) Foam (d) Emulsion

26. Which of the following is select as standard reference for measuring atomic masses?

- (a) Carbon-12 isotope  
(b) Hydrogen  
(c) Oxygen-14 isotope  
(d) Oxygen-12 isotope

27. Formula for ammonium sulphate is:

- (a)  $NH_4SO_4$  (b)  $NH_4SO_4$   
(c)  $(NH_4)_2SO_4$  (d)  $(NH_4)_2SO_4$

28. Which of the following is used in the treatment of cancer?

- (a) Isotope of cobalt  
(b) Isotope of uranium  
(c) Isotope of Iodine  
(d) Isotope of oxygen

29. Number of valence electron in  $Cl^-$  ion are:

- (a) 8 (b) 8  
(a) 16 (d) 18  
(c) 17

30. Calculate the number of particles in 46 g of Na atoms (number from mass):

- (a)  $6.023 \times 10^{23}$  (b)  $12.044 \times 10^{23}$   
(c)  $6.022 \times 10^{22}$  (d)  $1.51 \times 10^{23}$

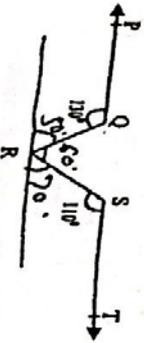
31. Rutherford's alpha-particles scattering experiment was responsible for the discovery of:

- (a) Atomic nucleus  
(b) Electron  
(c) Proton  
(d) Neutron

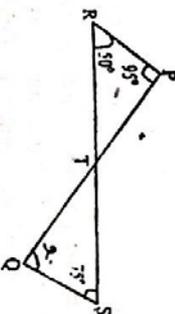
32. The chemical formula for marble is:

- (a)  $Ca_2O_3$   
(b)  $CaCO_3$   
(c) Marble has no formula  
(d)  $Ca(OH)_2$

32. The products of respiration process are:
- $6CO_2 + H_2O + \text{energy}$
  - $4CO_2 + 2H_2O + \text{energy}$
  - $9CO_2 + 3H_2O + \text{energy}$
  - $6CO_2 + 6H_2O + \text{energy}$
33. The colour of litmus solution is:
- Red
  - Blue
  - Purple
  - Green
34. The bleaching powder is represented as:
- $CaOCl_2$
  - $Ca(OH)_2$
  - $NaHCO_3$
  - $NaCO_3$
35. The good conductor of electricity is:
- Plastic
  - Graphite
  - Glass
  - Carbon
36. Which of the following pairs will give the displacement reaction?
- NaCl solution and copper metal
  - $MgCl_2$  solution and aluminum metal
  - $FeSO_4$  solution and silver metal
  - $AgNO_3$  solution and copper metal
37. Ethane with the molecular formula  $C_2H_6$  has:
- 6 covalent bonds
  - 7 covalent bonds
  - 8 covalent bonds
  - 9 covalent bonds
38. Butanone is a four carbon compound with the functional group of:
- Carboxylic acid
  - Aldehyde
  - Ketone
  - Alcohol
39. The maximum number of electron that can be accommodated in a shell depends on the formula:
- $n^2$
  - $2n$
  - $2n^2$
  - $4n^2$
40. The atomic radius along a period:
- Decrease in moving from left to right
  - Increases in moving from left to right
  - Decreases in moving from right to left
  - Increases in moving from right to left
41. The solution  $\frac{1}{7^5}$  is:
- $7^{15}$
  - $7^{13}$
  - $7^{\frac{1}{15}}$
  - $7^{\frac{1}{13}}$
42. How many rational numbers lie between any two given rational numbers?
- 2
  - 5
  - Finite
  - Infinite
43. Which of the following statement is true?
- Every whole number is a natural number
  - Every integer is a rational number
  - Every rational number is an integer
  - Both (a) and (c)
44. The expanded form of  $(4a-3b-2c)^2$  is:
- $16a^2 + 9b^2 + 4c^2 - 24ab + 12bc - 16ac$
  - $16a^2 + 9b^2 + 4c^2 - 24ab - 12bc + 16ac$
  - $16a^2 + 9b^2 + 4c^2 + 24ab - 12bc - 16ac$
  - $16a^2 + 9b^2 + 4c^2 - 24ab - 12bc - 16ac$
45. Evaluated form of  $(998)^3$  by using suitable identities is:
- 997002999
  - 994011992
  - 994011990
  - 994001992
46. The linear equation that converts temperature in Fahrenheit (F) to Celsius is:
- $F = \left(\frac{5}{9}\right)C + 32$
  - $F = \left(\frac{5}{9}\right)C - 32$
  - $F = \left(\frac{9}{5}\right)C - 32$
  - $F = \left(\frac{9}{5}\right)C + 32$
47. In the following figure, if  $PQ \parallel ST$ ,  $\angle PQR = 130^\circ$  and  $\angle RST = 110^\circ$ , then  $\angle QRA$  is:



48. In figure, if lines PQ and RS intersect at point T, such that  $\angle PRT = 50^\circ$ ,  $\angle RPT = 95^\circ$  and  $\angle TSQ = 75^\circ$  then  $\angle SQT$  is:
- $40^\circ$
  - $50^\circ$
  - $60^\circ$
  - $70^\circ$
49. If any two pairs of angles and one pair of corresponding sides of a triangle are equal then it is called:
- AAS congruence rule
  - ASA congruence rule
  - SAS congruence rule
  - SSA congruence rule
50. If the angles of quadrilateral are in the ratio of 4:5:9:12 then the angles of quadrilateral are:
- $36^\circ, 60^\circ, 108^\circ, 156^\circ$
  - $48^\circ, 60^\circ, 96^\circ, 156^\circ$
  - $48^\circ, 60^\circ, 108^\circ, 144^\circ$
  - $36^\circ, 72^\circ, 108^\circ, 144^\circ$
51. Which of the following statement is true?
- A circle has only finite number of equal chords
  - If a circle is divided into three equal arcs, each is a major arc
  - A chord of a circle, which is twice as long as its radius is a diameter of the circle
  - Sector is the region between the chord and its corresponding arc
52. If the sum of a pair of opposite angles of a quadrilateral is  $180^\circ$ , the quadrilateral is:
- Cyclic
  - Parallelogram
  - Rectangular
  - Square
53. Sides of a triangle are in the ratio of 12:17:25 and its perimeter is 540 cm. the area of triangle (in  $cm^2$ ) is:
- 8000
  - 8500
  - 9000
  - 9500
54. An umbrella is made by stitching 10 triangular pieces, each piece measuring 20 cm, 50 cm and 50 cm. how much cloth is required for the umbrella (in  $cm^2$ )?
- 5898.98
  - 4898.98
  - 4500
  - 4000
55. The floor of a rectangular hall has a perimeter of 250m. If the cost of painting the four walls at the rate of Rs. 10 per  $m^2$  is Rs. 15000, the height of the wall is (in m):
- 5
  - 3
  - 6
  - 7
56. A metal pipe is 77 cm long. The inner diameter of a cross section is 4cm, the outer diameter being 4.5 cm. The total curved surface area of the pipe (in  $cm^2$ ) is:
- 2057
  - 2012
  - 2123
  - 2218
57. A hemispherical bowl made up of steel is 0.5 cm thick. The inner of the bowl is 5cm, the outer curved surface area of the bowl (in  $cm^2$ ) is:
- 173.25
  - 69.14
  - 157.14
  - 190.14
58. A joker's cap is in the form of right circular cone base radius 5 cm and height 12 cm. the area of the sheet required to make 5 such caps (in  $cm^2$ ):
- 1021.43
  - 1216.35
  - 1431.87
  - 1806.92
59. A river 3m deep and 40 m wide is flowing at the rate of 2 km per hour.



- How much water will fall into the sea in a minute (in  $m^3$ )?
60. In a room of dimensions  $5m \times 4m \times 3m$ , how many boxes of size  $25cm \times 20cm \times 15cm$  can be kept?
61. If the diameter of a sphere is decreased by 25%, then the curved surface area is decreased by (in %):
62. The mode of the following data is 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18:
63. The following observations have been arranged in ascending order 29, 32, 48, 50, X, X+2, 72, 78, 84, 95. If the median of the data is 63, the value of 'X' is:
64. The probability of an event lies between.
65. Eleven bags of wheat flour each marked 5 kg, actually contained the following weights of flour (in kg) 4, 97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00. find the probability that any of these bags chosen at random contains less than 5 kg of flour.
66. Two coins are tossed simultaneously 100 times and we get, two heads = 25 times, one head = 50 times and no head = 15 times, the sum of probabilities of occurrence of these events will be:
67. If  $\alpha, \beta, \gamma$  are the zeroes of the cubic polynomial  $ax^3 + bx^2 + cx + d = 0$ , then  $a\alpha + \beta + \gamma + \alpha$  is:
68. The sum of the digits of two digit number is 9. Nine times this number is twice the number obtained by reversing the order of the digits. The number is:
69. A boy can swim 20 km in downstream in 2 hours and 4 km in upstream in 2 hours. The speed of current in km/hr is:
70. If the roots of equation  $2x^2 + kx + 3 = 0$  are equal, then k is:
71. The 20<sup>th</sup> term from the last term of the AP 3, 8, 13, ..... 253 is:
72. ABC and BDE are two equivalent triangles such that D is the mid point of BC. The ratio of the areas of triangles ABC and BDE is:
73. The ratio in which the y-axis divides the line segment joining the points (5, -6) and (-1, -4) is:

74. The value of  $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ$  is:
75. The value of  $\frac{\sin^2 63^\circ + \sin^2 27^\circ}{\cos^2 17^\circ + \cos^2 73^\circ}$  is:
76. The angle of elevation of the top of a tower from a point on the ground which is 30 m away from the foot of the tower is  $30^\circ$ . The height of the tower in m is:
77. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of  $80^\circ$ , then  $\angle POA$  is equal to:
78. The wheels of a car are of diameter 80cm each. When the car is traveling at a speed of 66 km/hour, in 10 minutes the number of complete revolutions each wheel makes is:
79. A hemispherical tank full of water is emptied by a pipe at the rate of  $3\frac{4}{7}$  liters per second. If the diameter of the tank is 3 m the time taken to empty half the tank in minutes is:
80. A card is drawn from a well shuffled deck of 52 cards. The probability that the card will not be an ace is:
81. How many Sajda Aayat are there in Quran?
82. How many times one prayer at ordinary place is equal to the one offered at Masjid Haram:
83. Which holy book was revealed upon Hazrat Isaa?
84. Who is founder of Madarsa Darul Uloom Deoband?
85. Road built by Sher Shah Soori is called:
86. In which country Baiul Magdas is located:
87. In how many years was complete Quran revealed?
88. Where was first 'Wahi' revealed the Prophet Mohammad (PBUH)?
89. In which state Konark Temple is located?
90. Which King built Jama Masjid of Delhi?

- (c) Haider Ali (d) Babar
91. Which of these Awards is not given in sports?  
 (a) Arjuna  
 (b) Rajiv Gandhi KhelRatan  
 (c) Phalke  
 (d) Dhayanchand
92. JawaharLal Nehru Award is conferred in which field :  
 (a) Music  
 (b) Film  
 (c) Sports  
 (d) International under standing
93. Who was the president of our country immediately after Dr. A.P.J. Abdul Kalam:  
 (a) Mr. K.R. Naraynan  
 (b) Mrs. Pratibha Patil  
 (c) Dr. S.D. Sharma  
 (d) Dr. R. Venkataka Raman
94. The mandal commission recommended \_\_\_\_\_ job's reservation for the OBC's:  
 (a) 29% (b) 27%  
 (c) 18% (d) 54%
95. The tenure of Government of a state is \_\_\_\_\_ years.
- (a) 4 (b) 3  
 (c) 6 (d) 5
96. Dogri is spoken in:  
 (a) Jammu & Kashmir  
 (b) Andman Nicobar  
 (c) Mizoram  
 (d) Panducherry
97. Akbar built an Ibadat khana at:  
 (a) Fatehpur Sikri (b) Agra  
 (c) Sikandra (d) Delhi
98. The Olympic symbol of five interlocking circles represent the five?  
 (a) Five Permanent members of Security council  
 (b) Five Continent  
 (c) Developed Nations G-5  
 (d) None of the above
99. The great Victoria Desert is located in:  
 (a) Canada (b) West Africa  
 (c) Australia (d) North America
100. Who is the first Indian woman to win an Asian Games gold in 400 m run?  
 (a) M.L. Valsamma  
 (b) P.T. Usha  
 (c) Kamaljit Sandhu  
 (d) K. Malleshwari

### ANSWERS - 2015-2016

1. (a)	2. (c)	3. (b)	4. (c)	5. (c)	6. (b)	7. (a)	8. (b)	9. (c)	10.(b)
11.(d)	12.(b)	13.(a)	14.(a)	15.(d)	16.(d)	17.(c)	18.(b)	19.(c)	20.(b)
21.(c)	22.(a)	23.(b)	24.(b)	25.(a)	26.(d)	27.(a)	28.(b)	29.(b)	30.(a)
31.(b)	32.(d)	33.(c)	34.(a)	35.(b)	36.(d)	37.(b)	38.(c)	39.(c)	40.(a)
41.(c)	42.(d)	43.(b)	44.(a)	45.(b)	46.(d)	47.(c)	48.(d)	49.(a)	50.(c)
51.(c)	52.(a)	53.(c)	54.(b)	55.(c)	56.(a)	57.(d)	58.(a)	59.(c)	60.(b)
61.(d)	62.(a)	63.(d)	64.(a)	65.(b)	66.(d)	67.(b)	68.(d)	69.(c)	70.(a)
71.(a)	72.(c)	73.(b)	74.(d)	75.(c)	76.(a)	77.(a)	78.(b)	79.(d)	80.(c)
81.(c)	82.(b)	83.(a)	84.(b)	85.(c)	86.(d)	87.(c)	88.(c)	89.(d)	90.(a)
91.(c)	92.(d)	93.(a)	94.(b)	95.(d)	96.(a)	97.(a)	98.(b)	99.(c)	100.(c)

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# +2 AMU Sci./Dip. Engg. 2017-2018

1. The value of  $m$  in  $-3(m-2) > 12$  is:

- (a)  $m > -2$                       (b)  $m < 2$   
 (c)  $m < -6$                       (d)  $m < -2$

2. If  $(x^{100} + 2x^{99} + k)$  is divisible by  $(x+1)$ , then the value of  $k$  is:

- (a) 1                                      (b) 2  
 (c) -2                                    (d) -3

3. Two complementary angles are such that twice the measure of the one is equal to three times the measure of the other. The larger of the two measures:

- (a)  $70^\circ$                                   (b)  $54^\circ$   
 (c)  $63^\circ$                                   (d)  $36^\circ$

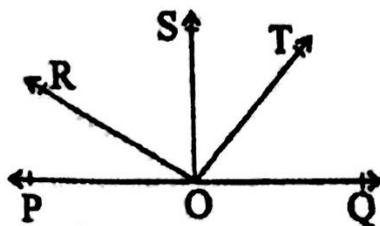
4. Points A and B are 60km apart. A bus starts from A and another from B at the same time. If they go in the same direction they meet in 6 hours and if they go in opposite directions, they meet in 2 hours. The speed of the bus with greater speed is:

- (a) 10 km/hr                              (b) 20 km/hr  
 (c) 30 km/hr                              (d) 40 km/hr

5. Find the ratio in which the line segment joining A(1, -5) and B(-4, 5) is divided by the x-axis:

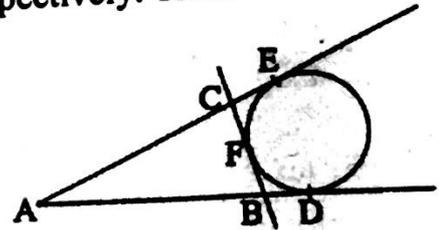
- (a) 1 : 1                                    (b) 2 : 1  
 (c) 3 : 2                                    (d) 1 : 2

6. In the given figure, ray OS stands on a line POQ. Ray OR and ray OT are angle bisectors of  $\angle POS$  and  $\angle SOQ$  respectively. If  $\angle POS = y$ ,  $\angle ROT$  equals:



- (a)  $50^\circ$                                   (b)  $70^\circ$

7. In the adjoining figure AD, AE and BC are tangents to the circle at D, E, F respectively. Then



- (a)  $4AD = AB + BC + AC$   
 (b)  $3AD = AB + BC + AC$   
 (c)  $2AD = AB + BC + AC$   
 (d)  $AD = AB + BC + AC$

8. The pillars of a building are cylindrically shaped. If each pillar has circular base of radius 20 cm and height 10 m, concrete required to build 14 such pillars is:

- (a)  $8.8 \text{ m}^3$                               (b)  $1.256 \text{ m}^3$   
 (c)  $17.6 \text{ m}^3$                               (d)  $12.56 \text{ m}^3$

9. A die is thrown 1000 times with frequencies for the outcomes 1, 2, 3, 4, 5, 6 as given in the table.

Outcome	1	2	3	4	5	6
Frequency	179	150	157	149	1275	190

- (a) 0.81                                      (b) 0.19  
 (c) 0.15                                      (d) 1.0

10. The mean of 25 observations is 36. The mean of the first 13 observations is 32 and that of last 13 observations is 39. What is the value of the 13<sup>th</sup> observation?

- (a) 20    (b) 23  
 (c) 32    (d) 40

11. Rational form of  $0.\overline{001}$  is:

- (a)  $\frac{1}{99}$                                       (b)  $\frac{1}{199}$   
 (c)  $\frac{1}{999}$                                       (d)  $\frac{1}{111}$

$f \frac{x}{y} + \frac{y}{x} = 1$  where  $x \neq 0, y \neq 0$ , then the value of  $(x^3 - y^3)$  is:

- (a) 1 (b) -1  
(c) 0 (d)  $\frac{1}{2}$

The ratio of incomes of two persons is 9 : 7 and the ratio of their expenditures is 4 : 3. If each of them saves Rs. 200 per month, find their monthly incomes:

- (a) Rs. 1200, Rs. 800  
(b) Rs. 1800, Rs. 1400  
(c) Rs. 1000, Rs. 7000  
(d) Rs. 9000, Rs. 7000

X takes 3 hours more than Y to walk 30 km. But, if X doubles his pace, he is ahead of Y by  $1\frac{1}{2}$  hours. Then the speeds of X and Y are:

- (a)  $10\frac{10}{3}$  km/hr, 10 km/hr  
(b) 10 km/hr,  $10\frac{10}{3}$  km/hr  
(c)  $10\frac{10}{3}$  km/hr, 5 km/hr  
(d) 10 km/hr, 5 km/hr

15. A motor boat whose speed is 18 km/h is still water takes 1 hour more to go 24 km upstream to return downstream to the same spot. The speed of the stream is:

- (a) 6 km/h (b) 54 km/h  
(c) 60 km/h (d) 8 km/h

16. A person on tour has Rs. 360 for his expenses. If he extends his tour for 4 days, he has to cut down his daily expenses by Rs. 3. Then the original duration of the tour is:  
(a) 20 (b) 24  
(c) 22 (d) 18
17. A rectangular park is to be designed whose breadth is 3 m less than its length. Its area is to be 4 square meters more than the area of a park that has already been made in the shape of an isosceles triangle with its base as the breadth of the rectangular park and of altitude 12 m. The length and breadth are:  
(a) 7 m, 4 m (b) 8 m, 5 m  
(c) 6 m, 3 m (d) 9 m, 6 m
18. How many terms of the AP 24, 21, 18, ... must be taken so that their sum is 78?  
(a) 4 (b) 13  
(c) 4 and 13 both (d) None of these
19. If A(5, 2), B(2, -2) and C(-2, 1) are the vertices of right angled triangle with  $\angle B = 90^\circ$ , then value of r:  
(a) 2 (b) 3  
(c) 1 (d) 4
20. In  $\triangle ABC$ , the medians BE and CF intersect at G. AGD is a line meeting BC in D. If  $GD = 1.5$  cm then AD is equal to:  
(a) 2.5 cm (b) 3 cm  
(c) 4.5 cm (d) 4 cm
21. If  $3x = \operatorname{cosec} \theta$ , and  $\frac{3}{x} = \cot \theta$ , then  $3\left(x^2 - \frac{1}{x}\right) = ?$ :  
(a)  $\frac{1}{21}$  (b)  $\frac{1}{81}$   
(c)  $\frac{1}{3}$  (d)  $\frac{1}{9}$
22. If A, B and C are interior angles of a triangle ABC, then  $\sin\left(\frac{B+C}{2}\right) =$   
(a)  $\sin \frac{A}{2}$  (b)  $\cos \frac{A}{2}$   
(c)  $-\sin \frac{A}{2}$  (d)  $-\cos \frac{A}{2}$

23.  $\sec A(1 - \sin A)(\sec A + \tan A)$  equals:  
(a) 0 (b) 2  
(c) 1 (d) -1

24. From a point on a bridge across a river, the angles of depression of the banks on opposite sides of the river are  $30^\circ$  and  $45^\circ$  respectively. If the bridge is at a height of 3m from the banks, the width of the river is:  
(a)  $3\sqrt{3}$  (b) 3m  
(c)  $3(\sqrt{3} - 1)$ m (d)  $3(\sqrt{3} + 1)$ m

25. The cost of fencing a circular field at the rate of Rs. 24/meter is Rs. 5280. The field is to be ploughed at the rate of Rs. 1 per  $m^2$ . The cost of ploughing the field is:  
(a) Rs. 1925 (b) Rs. 3850  
(c) Rs. 2925 (d) Rs. 5280

26. A cone of height 24 cm and radius of the base 6 cm is made up of modelling clay. A child reshapes it in form of sphere. The radius of sphere is:  
(a) 8 cm (b) 6 cm  
(c) 4 cm (d) 2 cm

27. A copper rod of diameter 1 cm and length 8 cm is drawn into a wire of length 18 m of uniform thickness. The thickness of the wire is:  
(a)  $\frac{1}{30}$  cm (b)  $\frac{1}{90}$  cm  
(c)  $\frac{1}{15}$  cm (d)  $\frac{1}{60}$  cm

28. If the median of the following series of observation is 40  
30, 31, 35, x,  $x+2$ , 45, 48, 49  
(a) 41 (b) 39  
(c) 42 (d) 43

29. In a musical chair game, the person playing the music has been advised to stop playing the music at any time within 2 minutes after she starts playing. What is the probability that

the music will stop within the first half-minute after starting?  
(a)  $\frac{1}{4}$  (b)  $\frac{1}{2}$   
(c)  $\frac{1}{8}$  (d) 1

30. A bag contains 4 red balls and some blue balls. If the probability of drawing a blue ball is double that of red ball, find the number of the blue balls in the bag:  
(a) 10 (b) 8  
(c) 6 (d) 12

31. Which is highest honour of award given for achievement in sports  
(a) Arjuna Award  
(b) Dronacharya Award  
(c) Dhyan Chand Award  
(d) Rajiv Gandhi KhelRatna Award

32. Which cup and trophy is associated with cricket?  
(a) Ranji Trophy (b) Agha Khan Cup  
(c) Davis Cup (d) Walker Cup

33. The Kaval Tiger Reserve (KTR) is located in the Indian State of:  
(a) Telangana (b) Nagaland  
(c) Manipur (d) Sikkim

34. The radius of the earth is approximately \_\_\_\_\_ kms.  
(a) 4000 (b) 5000  
(c) 6000 (d) 7000

35. Which state has become the first Indian state to establish cashless system for distribution of food grains?  
(a) Karnataka (b) Kerala  
(c) Punjab (d) Gujarat

36. E. Ahmad, who passed away recently, was Member of parliament (MP) from which Lok Sabha constituency?  
(a) Ernakulam (b) Mallapuram  
(c) Kozhikode (d) Thrissur

7. Who won the Monaco Grand Prix in 2016?  
 (a) Fernando Alonso  
 (b) Nico Hulkenberg  
 (c) Kimi Raikkonen  
 (d) Lewis Hamilton
38. "A Tale of Two Cities" and "Oliver Twist" was written by  
 (a) John Milton  
 (b) William Shakespeare  
 (c) Lewis Carroll  
 (d) Charles Dickens
39. Where was 2016 Summer Olympics held?  
 (a) Rio de Janeiro (b) Los Angeles  
 (c) Montreal (d) Paris
40. Who was the first President of United States of America?  
 (a) Donald Trump  
 (b) George Washington  
 (c) George Bush  
 (d) Abraham Lincoln
41. Madrasatul Uloom was established by Syed Ahmed Khan in:  
 (a) 1895 AD (b) 1865 AD  
 (c) 1875 AD (d) 1870 AD
42. Which of the following was not a Mughal emperor?  
 (a) Babur (b) Bahadur Shah  
 (c) Sher Shah (d) Aurangzeb
43. Whose tomb is situated in Delhi?  
 (a) Moinuddin Chishti  
 (b) Nizamuddin Auliya  
 (c) Sheikh Ahmed Sirhindi  
 (d) Baba Farid Ganjshakar
44. Who gave the slogan 'Inquilab Zindabad'?  
 (a) Mahatma Gandhi  
 (b) Bhagat Singh  
 (c) Molana Hasrat Mohani  
 (d) Molana Abul Kalam Azad
45. The first Indian expedition of Muhammad Ghauri was:  
 (a) 1478 AD (b) 1175 AD
- (c) 1078 AD (d) 975 AD
46. What is the old name of Madinah-tul-Munawwarh?  
 (a) Taif (b) Yasrib  
 (c) Hijaz (d) Yemen
47. Uncle of Prophet, Hamzah was killed in the:  
 (a) Battle of Badar  
 (b) Battle of Ahzab  
 (c) Battle of Yamamah  
 (d) Battle of Uhad
48. Before the Prophethood Muhammad (PBUH) was:  
 (a) A traveler (b) A trader  
 (c) A farmer (d) A herdsman
49. The first Prophet of Allah was:  
 (a) The Prophet Nuh  
 (b) The Prophet Ibrahim  
 (c) The Prophet Isahq  
 (d) The Prophet Adam
50. The Life Hereafter is known in Islam as:  
 (a) Qayamat (b) Mahshar  
 (c) Jannat (d) Akhirat
51. The position of an object moving along x-axis is given by  $x = a + bt^2$  where  $a=8.5$  m,  $b=2.5$  m/s<sup>2</sup> and  $t$  is measured in seconds. What is the average velocity between  $t=2s$  and  $t=4s$ ?  
 (a) 15 m/s (b) 10 m/s  
 (c) 20 m/s (d) 12 m/s
52. The displacement of a wave travelling in x-direction is given by  $y = 10^{-3} \sin(800t - 2x + \frac{\pi}{3})$   
 Where,  $x$  is expressed in meters and  $t$  in seconds. The speed of wave motions (in ms<sup>-1</sup>) is:  
 (a) 400 (b) 800  
 (c) 1200 (d) 200
53. In a tug of war, a 100 kg mass is hanged from the mid-point of the

rope. The force that each side should exert to make the rope horizontal again is:

- (a) 980 N (b)  $\frac{9800}{2}$  N  
 (c) 9800 N (d)  $\infty$

54. A machine gun has a mass of 20 kg. It fires 35 gm bullets at the rate of 400 bullets per minute with a speed of 400 m/s. What force must be applied to the gun to keep it in position?  
 (a) 93.3 N (b) 933 N  
 (c) 9.33 N (d) 9330 N

55. Two masses of 1 g and 9 g are moving with equal kinetic energies. The ratio of the magnitudes of their respective linear momenta is:  
 (a) 1 : 9 (b) 9 : 1  
 (c) 1 : 3 (d) 3 : 1

56. An object of mass 40 kg is raised to a height of 5 m above the ground. If the object is allowed to fall, find its kinetic energy when it is half-way down ( $g=10$  m/s<sup>2</sup>).  
 (a) 2000 J (b) 1000 J  
 (c) 200 J (d) 100 J

57. If the two liquids of same mass but densities  $d_1$  and  $d_2$  respectively are mixed, then the density of mixture is:  
 (a)  $d = \frac{d_1 + d_2}{2}$   
 (b)  $d = \frac{d_1 + d_2}{2d_1d_2}$   
 (c)  $d = \frac{2d_1d_2}{d_1 + d_2}$   
 (d)  $d = \frac{d_1d_2}{d_1 + d_2}$

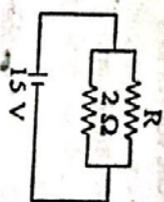
58. A boat having a length of 3 m and breadth of 2m is floating on a lake. The boat sinks by 1 cm when a man

gets on it. The mass of the man will be : (Density of water = 1000 kg/m<sup>3</sup>)  
 (a) 60 kg (b) 72 kg  
 (c) 12 kg (d) 128 kg

59. The distance travelled by sound in air, when tuning fork of frequency 560Hz makes 30 vibrations, will be : (speed of sound in air = 336 m/s)  
 (a) 18 cm (b) 1.8 m  
 (c) 18 m (d) 0.18 m

60. The pitch of sound is :  
 (a) Directly proportional to frequency of vibration  
 (b) Inversely proportional to frequency of vibration  
 (c) Directly proportional to amplitude of vibration  
 (d) Inversely proportional to amplitude of vibration

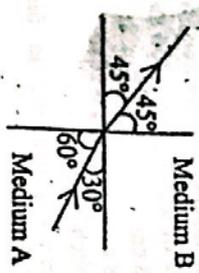
61. If in the circuit, power dissipation is 150 W, then R is



62. Two heater wires of equal length are first connected in series and then in parallel. The ratio of heat produced in the two cases is  
 (a) 2 : 1 (b) 1 : 2  
 (c) 5 : 1 (d) 1 : 4

63. When the same current is passed for the same time through different electrolyte solutions, the amount of substance deposited at the electrodes are in the ratio of :  
 (a) Chemical equivalent weights  
 (b) Atomic weights  
 (c) Specific gravities

- (d) Atomic numbers  
64. Figure shows a ray of light as it travels from medium A to medium B. Refractive index of medium B relative to medium A is :



- (a)  $\sqrt{3}/\sqrt{2}$  (b)  $\sqrt{2}/\sqrt{3}$   
(c)  $1/\sqrt{2}$  (d)  $\sqrt{2}$   
65. Power of a lens is  $-2.0$  D. The focal length and type of lens are respectively:  
(a)  $-50$  cm, convex lens  
(b)  $-50$  cm, concave lens  
(c)  $+50$  cm, convex lens  
(d)  $+50$  cm, concave lens  
66. Which of the following is not an example of a bio-mass energy source?  
(a) Wood (b) gobar-gas  
(c) nuclear energy (d) coal  
67. Uneven heating of air over and water bodies causes  
(a) Winds (b) Tides  
(c) Rain (d) All of these  
68. Which of the following energy is absorbed during the change of the state of a substance?  
(a) Specific heat (b) Heat capacity  
(c) Heat capacity (d) Heat of solution  
69. The process involving the change of state from solid to gas is:  
(a) Boiling (b) Melting  
(c) Fusion (d) Sublimation  
70. Which one of the following properties is not correct for a suspension?  
(a) Suspension is a heterogeneous mixture  
(b) The particles of suspension can be seen by the naked eye  
(c) The particles of a suspension scatter a beam of light passing through it and make its path visible  
(d) They cannot be separated from the mixture by the process of filtration  
71. Face cream is a  
(a) Gel-type colloids  
(b) From type colloids  
(c) Aerosol type colloids  
(d) Emulsion type colloids  
72. The mass of one molecule of methane is:  
(a)  $16$  g (b)  $32$  g  
(c)  $6.023 \times 10^{23}$ g (d)  $2.66 \times 10^{-23}$ g  
73. The number of neutrons present in  $26$  g of  $^{13}\text{C}$  are:  
(a)  $7$  (b)  $6$   
(c)  $8.43 \times 10^{24}$  (d)  $4.21 \times 10^{23}$   
74. In Rutherford atomic model  $\alpha$  particles were stroked on:  
(a) Aluminium (b) Gold  
(c) Silver (d) Titanium  
75. Respiration is:  
(a) An exothermic process  
(b) An endothermic process  
(c) Neither exothermic nor endothermic  
(d) Can be exothermic or endothermic  
76. Which gas is liberated when sodium bicarbonate is reacted with aqueous hydrochloric acid?  
(a)  $\text{N}_2$  (g) (b)  $\text{CO}_2$  (g)  
(c)  $\text{O}_2$  (g) (d)  $\text{CO}$  (g)  
77. Leaves of nettle have stinging hair and secrete:  
(a) Acetic acid (b) Citric acid  
(c) Methanoic acid (d) Oxalic acid

78. What is the normality of  $0.3$  M  $\text{H}_3\text{PO}_4$ , when it undergoes the reaction as:  
 $\text{H}_3\text{PO}_4 + 2\text{OH}^- \rightarrow \text{HPO}_4^{2-} + 2\text{H}_2\text{O}$   
(a)  $0.3$  N (b)  $0.15$  N  
(c)  $0.6$  N (d)  $0.9$  N  
79. A solution turns red litmus blue, its pH is likely to be:  
(a)  $1$  (b)  $4$   
(c)  $5$  (d)  $10$   
80. Buckminster fullerene is an allotropic form of:  
(a) Phosphorus (b) Sulphur  
(c) Carbon (d) Tin  
81. The correct name of the below compound is  $\text{HC}\equiv\text{CCH}_2(\text{CH}_2)_3\text{CH}_3$   
(a) Butyne (b) Propyne  
(c) Heptyne (d) Hexyne  
82. Benzene with molecular formula,  $\text{C}_6\text{H}_6$  has  
(a)  $6$  single bonds and  $6$  double bonds  
(b)  $12$  single bonds and  $3$  double bonds  
(c)  $6$  single bonds and  $3$  double bonds  
(d)  $18$  single bonds only  
83. Heating of ethanol with excess conc.  $\text{H}_2\text{SO}_4$  at  $443$  K produces:  
(a) Ethene and water  
(b) Acetic acid and water  
(c) Acetic acid and hydrogen  
(d) Methanol and water  
84. Which of the following metal have lowest melting point?  
(a) Pb (b) Rb  
(c) K (d) Cs  
85. The atomic number of elements which represents a metal is:  
(a)  $17$  (b)  $2$   
(c)  $19$  (d)  $33$   
86. The major pollutant from automobile exhaust is:  
(a) NO (b) CO  
(c)  $\text{SO}_2$  (d) Soot  
87. The largest group of animal kingdom characterized by bilateral symmetry  
(a) Mollusca (b) Echinodermata  
(c) Arthropoda (d) Annelida  
88. Which is not the characteristic of vertebrate?  
(a) Presence of dorsal hollow nerve cord  
(b) Presence of notochord  
(c) Acoelomate  
(d) Triploblastic  
89. Oxygenation of blood in human beings occurs in:  
(a) Right atrium (b) Left atrium  
(c) Lungs (d) Left ventricle  
90. When terminal phosphate linkage in ATP molecule is broken down using water, energy of \_\_\_\_\_ is released:  
(a)  $7$  kJ/mol (b)  $18.5$  kJ/mol  
(c)  $22$  kJ/mol (d)  $30.5$  kJ/mol  
91. Existence of four chambered working heart starts from:  
(a) Amphibia (b) Reptilia  
(c) Aves (d) Mammalia  
92. The breakdown of pyruvate to give carbon dioxide, water and energy take place in:  
(a) Cytoplasm (b) Mitochondria  
(c) Chloroplast (d) Nucleus  
93. Which one of the following group of animals are triploblastic and radially symmetrical?  
(a) Nematoda  
(b) Annelida  
(c) Echinodermata  
(d) Vertebrata  
94. Which is the dividing tissue present in the growing regions of the plant?  
(a) Adipose tissue  
(b) Meristematic tissue  
(c) Protective tissue  
(d) Epithelial tissue  
95. Which of the following is a complex tissue?  
(a) Mollusca (b) Echinodermata  
(c) Arthropoda (d) Annelida  
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(c) Protective tissue  
(d) Epithelial tissue  
95. Which of the following is a complex tissue?

- (a) Xylem  
(b) Phloem  
(c) Neither (a) nor (b)  
(d) Both (a) and (b)
96. Which of the following do not produce seeds?  
(a) Gymnosperms  
(b) Angiosperms  
(c) Pteridophyta  
(d) None of the above
97. Which of the following is not an example of Porifera?  
(a) Euplectella  
(b) Sycon  
(c) Spongilla  
(d) Sea Anemones

98. The gap between two neurons is called:  
(a) Synapse  
(b) Axon  
(c) Neither (a) and (b)  
(d) Both (a) and (b)
99. The anther contains:  
(a) Sepals (b) Pollen grains  
(c) Ovules (d) Carpel
100. An example of homologous organs is:  
(a) Our arm and a dog's foreleg  
(b) Our teeth and an elephant's tusks  
(c) Neither (a) nor (b)  
(d) Both (a) and (b)

### ANSWERS - 2017-2018

1. (d)	2. (a)	3. (b)	4. (b)	5. (a)	6. (c)	7. (c)	8. (c)	9. (b)	10. (b)
11. (c)	12. (c)	13. (b)	14. (c)	15. (a)	16. (a)	17. (a)	18. (c)	19. (c)	20. (c)
21. (c)	22. (b)	23. (c)	24. (d)	25. (b)	26. (b)	27. (c)	28. (b)	29. (a)	30. (b)
31. (d)	32. (a)	33. (a)	34. (c)	35. (d)	36. (b)	37. (d)	38. (d)	39. (a)	40. (b)
41. (c)	42. (c)	43. (b)	44. (c)	45. (b)	46. (b)	47. (d)	48. (b)	49. (d)	50. (d)
51. (a)	52. (a)	53. (d)	54. (a)	55. (c)	56. (b)	57. (c)	58. (a)	59. (c)	60. (a)
61. (b)	62. (c)	63. (a)	64. (a)	65. (b)	66. (c)	67. (a)	68. (b)	69. (d)	70. (d)
71. (d)	72. (d)	73. (c)	74. (b)	75. (a)	76. (b)	77. (c)	78. (c)	79. (d)	80. (c)
81. (c)	82. (b)	83. (a)	84. (d)	85. (c)	86. (b)	87. (c)	88. (c)	89. (c)	90. (d)
91. (b)	92. (b)	93. (c)	94. (b)	95. (d)	96. (c)	97. (d)	98. (a)	99. (b)	100. (d)