

074/2016

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. The Constituent Assembly firstly summoned in Constitution Hall. Which is recently known as :
(A) Constituent Assembly Hall (B) Central Hall of Parliament
(C) Assembly Hall of Lok Sabha (D) Assembly Hall of Rajya Sabha
2. Which articles of Indian Constitution deals about citizenship?
(A) Article 14-18 (B) Article 36-51
(C) Article 5-11 (D) Article 6-12
3. The Untouchability Offence Act passed by Indian parliament in :
(A) 1955 (B) 1956
(C) 1961 (D) 1972
4. The Right to Information Act came to exist on :
(A) 2005 - Sept. 16 (B) 2005 - Aug. 18
(C) 2005 - Nov. 13 (D) 2005 - Oct. 12
5. The first Echo Tourism Centre in India :
(A) Thattekkad (B) Thenmala
(C) Pampadumpara (D) Odakkali
6. 'Veenapoo' of Kumaranasan firstly published in :
(A) Vivekodayam (B) Swaraj
(C) Malayalee (D) Mithavadi
7. The Newspaper Al-Ameen was started by :
(A) Muhammed Abdul Rahman (B) Vakkam Abdul Khader Moulavi
(C) Moulana Abdul Kalam Azad (D) Moulana Shoukathali
8. The headquarter of Kerala Sahitya Akkadami transferred from Thiruvananthapuram to Thrissur in :
(A) 1958 (B) 1956
(C) 1957 (D) 1961
9. Who was inaugurated Kerala Sangeetha Nadaka Akkadami in 1958?
(A) Chithira Thirunal Bala Rama Varma (B) Pattam Thanu Pilla
(C) Jawaharlal Nehru (D) E.M.S. Namboothiripad

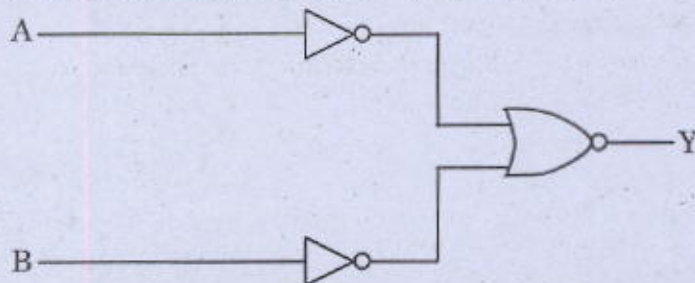
10. Who is regarded as 'John of Arch' of Kerala?
 (A) Akkamma Cheriyan (B) Anna Chandi
 (C) Parvathi Nenmenimangalam (D) A.V. Kuttimalu Amma
11. The real name of Brahmananda Siva Yogi :
 (A) Karatt Achutha Menon (B) Karatt Govinda Menon
 (C) Krishnan Nambiadiri (D) Kunchi Kannan
12. Who got the 'Njanapita Award' of 2014?
 (A) O.N.V. Kurup (B) Thara Sankar Bandopadyaya
 (C) Balachandra Nomade (D) Amritha Preetham
13. Who wrote the first biography of Sree Narayana Guru?
 (A) Moorkoth Ramanunni (B) Kumaranasan
 (C) Moorkoth Kumaran (D) Dr. Palppu
14. The Association formed by Poykayil Yohannan :
 (A) PRCS (B) PRDA
 (C) PADS (D) PRDS
15. Who was the first Non-Brahmin man who ring the temple bell of Guruvayoor Temple?
 (A) P. Krishna Pillai (B) T.K. Madhavan
 (C) K. Kelappan (D) Mannathu Padmanabhan
16. 'Atmanutapam' written by :
 (A) Chattambi Swamikal (B) Vakbadananda
 (C) Markuriakose Elias Chavara (D) Vaikunda Swamikal
17. Who is regarded as 'Kerala Hemingway'?
 (A) M.T. Vasudevan Nair (B) Thakazhi Sivasankara Pillai
 (C) C.V. Raman Pillai (D) Kurisseri Gopala Pillai
18. Who is called the Legal Adviser of Indian Government?
 (A) Attorni General (B) Advocate General
 (C) Controller and Auditor General (D) Planning Commission
19. The first women speaker of Lok Sabha, Meerakumar was elected from which constituency?
 (A) Thoothukudi (B) Sasaram
 (C) Amaravati (D) Indore
20. The aim of 'Rajiv Awaz Yojana' :
 (A) Rural housing (B) Urban housing
 (C) Slum free India (D) Housing for SC, ST

21. The expression which indicates the units of a physical quantity in terms of fundamental units is :
- (A) homogenous equation (B) dimensional equation
(C) analysis equation (D) none of these
22. The maximum permissible error in a difference $z = x - y$ is :
- (A) $\Delta z = \Delta x + \Delta y$ and $\Delta z/z = (\Delta x + \Delta y)/(x - y)$
(B) $\Delta z = \Delta x - \Delta y$ and $\Delta z/z = (\Delta x - \Delta y)/(x - y)$
(C) $\Delta z = \Delta x + \Delta y$ and $\Delta z/z = (\Delta x - \Delta y)/(x - y)$
(D) $\Delta z = \Delta x + \Delta y$ and $\Delta z/z = (\Delta x + \Delta y)/(x + y)$
23. The threshold frequency corresponds to the wavelength of radiation incident on certain metal with work function 3.31×10^{-19} J is : ($h = 6.62 \times 10^{-34}$ Js)
- (A) $\lambda = 6500 \text{ \AA}$ (B) $\lambda = 6200 \text{ \AA}$
(C) $\lambda = 6000 \text{ \AA}$ (D) $\lambda = 7000 \text{ \AA}$
24. Which of the following schemes does not produce lasing action?
- (A) Two level (B) Three level
(C) Four level (D) Five level
25. A person sitting inside a car is safe because :
- (A) The electric field inside the car is equal to the field outside
(B) The electric field inside the car is zero
(C) The electric field inside the car will be cancelled by lightning
(D) The electric field inside the car is infinity
26. The differential form of Gauss's theorem is :
- (A) $\nabla \cdot \mathbf{E} = \rho / \mu_0$ (B) $\nabla^2 \mathbf{E} = 0$
(C) $\nabla \cdot \mathbf{E} = \rho / \epsilon_0$ (D) $\nabla \cdot \mathbf{V} = \rho / \epsilon_0$
27. Change in entropy when 0.2 kg water falls in temperature from 360 K to 340 K is :
- (A) 0.482 J/K (B) 0.0482 J/K
(C) -0.482 J/K (D) -0.428 J/K
28. The Mayer's relation is :
- (A) $C_p - C_v = R$ (B) $C_p / C_v = \gamma$
(C) $PV = nRT$ (D) None of these

29. At terminal velocity, the acceleration of the body is :
 (A) maximum (B) same as that of the velocity
 (C) square of the velocity (D) zero
30. The velocity of the particle is given by the relation $v = at^2 + bt + c$. The dimension of a , b and c are :
 (A) $(LT^{-3}, LT^{-2}, LT^{-1})$ (B) $(LT^{-1}, L^{-1}T^2, LT^{-1})$
 (C) (LT^3, LT^{-2}, LT^2) (D) (LT^{-3}, LT^2, LT^{-1})
31. The Young's modulus $Y = MgL/\pi r^2l$, it is given that $L = 2.890$ m, $M = 3.00$ kg, $g = 9.81$ m/s², $r = 0.041$ cm, $l = 0.087$ m. The possible percentage of error is :
 (A) 6.036% (B) 6.306%
 (C) 6.360% (D) 6.630%
32. Of the five spectrum series of hydrogen, which one lies in ultraviolet region?
 (A) Balmer series (B) Lyman series
 (C) Pfund series (D) Bracket series
33. A quarter wave plate produces a path difference of :
 (A) $\lambda/4$ (B) $2\lambda/4$
 (C) $3\lambda/4$ (D) $4\lambda/4$
34. The force F experienced by a moving charge with speed v in electric and magnetic field is :
 (A) $F = [qE + (v \times B)]$ (B) $F = [E + q(v \times B)]$
 (C) $F = [q(E \times B) + v]$ (D) $F = q[E + (v \times B)]$
35. The frequency of oscillation of charging LCR circuit is :
 (A) $f = 2\pi\sqrt{1/LC - R^2/4L^2}$ (B) $f = 1/2\pi\sqrt{1/LC - R^2/4L^2}$
 (C) $f = 2\pi\sqrt{1/LC^2 - R^2/4L^2}$ (D) $f = 1/2\pi\sqrt{1/LC - R/4L}$
36. The dimension of scattering cross section is that of :
 (A) velocity (B) volume
 (C) area (D) none of these
37. The work done in blowing a bubble of surface tension T , having radius r is :
 (A) $4\pi r^2T$ (B) $4\pi T/r^2$
 (C) $8\pi r^2T$ (D) $8/\pi r^2T$

38. If I is the moment of inertia, ω is the angular velocity and m is the mass of a rotating body then kinetic energy is
- (A) $K = \frac{1}{2} m \omega^2$ (B) $K = \frac{1}{2} I \omega^2$
 (C) $K = \frac{1}{2} I m \omega^2$ (D) $\frac{1}{2} I^2 m \omega^2$
39. In CE amplifier emitter current = 6 mA, base current = 0.1 mA, then current gain is :
- (A) 59 (B) 65
 (C) 60 (D) 50
40. A galvanometer having 30 divisions and a current sensitivity of $20 \mu\text{A}/\text{div}$ and it has a resistance of 25Ω . To convert it into an ammeter up to 1 amp, the shunt required is :
- (A) 1.050Ω (B) 1.0050Ω
 (C) 1.510Ω (D) 0.1050Ω
41. The additional term introduced by Maxwell to remove the inconsistency of Ampere's law is :
- (A) $\mu_0 \partial B / \partial t$ (B) $\epsilon_0 \partial^2 E / \partial t^2$
 (C) $\epsilon_0 \partial E / \partial t$ (D) $\mu_0 \epsilon_0 \partial^2 E / \partial t^2$
42. The efficiency of a network when it transfer maximum power to the load is :
- (A) 25% (B) 50%
 (C) 75% (D) 100%
43. Skooter, the dog weighs exactly 36.5 kg. When weighed on a defective scale he weighed 38 kg. The percentage of error in measurement of defective scale to the nearest tenth is :
- (A) 4.1% (B) 4.3%
 (C) 4.2% (D) 4.0%
44. When a plane polarised light incident on a rotating analyser, in one complete rotation one finds :
- (A) one complete extinction
 (B) one brightness and two complete extinction
 (C) two brightness and one complete extinction
 (D) two brightness and two complete extinction
45. Sky is blue because of :
- (A) Raman scattering (B) Rayleigh scattering
 (C) Brillouin scattering (D) Meiser scattering

46. Which of the logic gate is represented by the following combination?



- (A) OR (B) NAND
(C) AND (D) NOR

47. A uniform electric field pointing in positive y direction exists in a region. Let A be the origin, B be the point on x axis at $x = 2$ cm and C be the point on y axis at $y = 2$ cm, the potential at the points A , B and C satisfy :

- (A) $V_A < V_B$ (B) $V_A > V_B$
(C) $V_A < V_C$ (D) $V_A > V_C$

48. A cricket ball is thrown at a speed of 28 m/s in a direction 30° above the horizontal, the distance from the thrower to the point where the ball returns to the same level is :

- (A) 72 m (B) 69 m
(C) 70 m (D) 58 m

49. The escape velocity of a body depends on :

- (A) mass of the body
(B) the direction of projection
(C) the location from where it is projected
(D) the height of the location from where it is projected

50. The unit of power of lens is :

- (A) dioptre (B) square metre
(C) N/m^2 (D) decibel

51. The dimension of gravitational field intensity is :

- (A) LT^{-2} (B) MLT^2
(C) L^2MT (D) None of these

52. The wavelength of light, when the angle of minimum deviation is 30° for the second order and the number of lines per cm of the grating is 5000, is :

- (A) 5.107×10^{-7} m (B) 51.07×10^{-7} m
(C) 5.176×10^{-7} m (D) 5.106×10^{-7} m

53. The spherical aberration of the lens can be minimised :
- by using a crossed lens
 - by using two lenses separated by a distance
 - by using a planable lens
 - all of these
54. A bullet of mass 0.04 kg moving with a speed of 90 m/s enters a heavy wooden block and stopped after distance of 60 cm. The retardation of the bullet is :
- -6750 m/s^2
 - -6570 m/s^2
 - -7650 m/s^2
 - -6705 m/s^2
55. The percentage in the measurement of mass and velocity is 1% and 2% respectively. Then the percentage error in kinetic energy is :
- 4%
 - 5%
 - 6%
 - 8%
56. The measured value of a quantity is 75.5 and the expected value is 80.0. Then the relative error is :
- 0.05%
 - 5.6%
 - 6.5%
 - 6.5%
57. Which property of zener diode is used to regulate supply voltage?
- At break down voltage there is a large in the reverse current
 - The large reverse current will change the reverse voltage
 - The zener voltage is independent of the current through the diode
 - None of these
58. The density of atmosphere at sea level is 1.29 kg/m^3 . Assume that it does not change with altitude, the atmosphere extended up to :
- 8 km
 - 9.5 km
 - 12.5 km
 - 18 km
59. The least count of screw gauge is given by :
- pitch / number of division on main scale
 - magnitude of one main scale division / number of division on vernier scale
 - pitch / number of division on head scale
 - magnitude of one pitch scale division / number of division on vernier scale
60. In Newton's ring experiment the diameter of m^{th} ring changes from 1.2 cm to 1 cm when the air space between the lens and the plate is replaced by some transparent liquid. The refractive index of the liquid is :
- 1.45
 - 1.44
 - 1.33
 - 1.35

61. How one can prepare a p-type conducting polymer from polyacetylene?
(A) Doping with Na^+ (B) Doping with Ca^{2+}
(C) Doping with Naphthalene (D) Doping with I^-
62. The fact that differentiate a conducting polymer from a conventional metallic conductor is :
(A) conducting polymer exhibits metallic lustre
(B) conducting polymer possesses a valance band and conduction band
(C) the charge carriers in conducting polymers are electrons
(D) in conducting polymers the conductance increases with increase in temperature
63. Monomer unit of Neoprene is :
(A) Chloroprene (B) Isoprene
(C) Acetylene (D) Caprolactum
64. Find out the odd one among the following polymers :
Polyethylene, Polystyrene, Teflon, Nylon 6,6
(A) Polyethylene (B) Polystyrene
(C) Teflon (D) Nylon 6,6
65. Which one of the following is a method for the preparation of carbon nanotubes?
(A) High pressure carbon monoxide process
(B) Chemical vapour deposition method
(C) Arc discharge method
(D) All the above
66. What is the hybridisation of carbon in carbon nanotube?
(A) sp (B) dsp^2
(C) sp^2 (D) sp^3
67. Which of the following is related with carbon nanotubes?
(A) Single walled (B) Chiral
(C) Arm chair (D) All the above
68. Which one of the following is an example for a thermosetting plastic?
(A) Polypropylene (B) Polystyrene
(C) PVC (D) Bakelite
69. The parameter which is measured experimentally in a bomb calorimeter is :
(A) ΔC_V (B) ΔH_C
(C) ΔG_C (D) ΔT