

- Q.1 Pain due to Gastro-Esophageal reflex may not be due to
(A) Epigastric (B) Retrosternal (C) Suprapubic (D) In the back
- Q.2 Late complications of valve replacement (prosthetic) are all except
(A) Paravalvular leakage (B) Thromboembolic
(C) Bleeding due to anticoagulants (D) Recurrence of rheumatism
- Q.3 Regarding malfunctioning of Prosthetic valve which one is true
(A) Not used in young because of accelerated deterioration
(B) Useful in pregnant females and elderly because anticoagulants are not used
(C) There is increase in thromboembolic episodes
(D) It needs 30% replacement in 10 years and 50% in 15 years
- Q.4 In Holiday heart syndrome due to alcohol which arrhythmia is not seen
(A) Atrial fibrillation (B) Atrial flutter
(C) Complete heart block (D) Ventricular premature beat
- Q.5 Calcium Channel Blockers are not used in
(A) Portal Hypertension with varices (B) Achalasia
(C) Atrial flutter (D) Prinzmetal's variant angina
- Q.6 Which one of this is a non drug trial for controlling hypertension
(A) CAPP trial (B) HOT study (C) DASH trial (D) HOPE study
- Q.7 Cogan's syndrome has all of the following except
(A) Interstitial keratitis with vestibulo-auditory symptoms
(B) Systemic vasculitis particularly aortitis with aortic valve replacement
(C) Glucocorticoids are used
(D) Diffuse hepatitis with jaundice
- Q.8 Highest concentration of Potassium is seen in
(A) Duodenum (B) Colon (C) Ileum (D) Jejunum
- Q.9 Colonic pseudo-obstruction occurs in all except
(A) Diabetes mellitus (B) Hyperthyroidism
(C) Scleroderma (D) Dermatomyositis

- Q.10 Commonest site of ischemic colitis
(A) Hepatic flexure (B) Splenic flexure
(C) Transverse colon (D) Sigmoid colon
- Q.11 Aspirin sensitive asthma is associated with
(A) Extrinsic asthma (B) Urticaria
(C) Nasal polyps (D) Obesity
- Q.12 Most common sign of Aspiration pneumonitis
(A) Tachypnoea (B) Bronchospasm
(C) Cyanosis (D) Crepitations
- Q.13 Most common cause of Superior venacaval obstruction
(A) Thrombosis (B) Extrinsic compression
(C) Mediastinal lymphoma (D) Teratoma
- Q.14 In Kartagener's syndrome all are seen except
(A) Cystic fibrosis (B) Dextrocardia
(C) Sinusitis (D) Absence of cilia
- Q.15 Which one of the following method of communication is not a method of mass approach
(A) Internet (B) Poster (C) Role play (D) Exhibition
- Q.16 Nosocomial pneumonia is most commonly caused by
(A) Gram negative bacilli (B) Gram positive bacilli
(C) Gram negative cocci (D) Mycoplasma
- Q.17 Which of the following is not associated with malignancy
(A) Fragile x syndrome (B) Fanconi's syndrome
(C) Down's syndrome (D) Bloom syndrome
- Q.18 Of the following substances, the one that functions intracellularly in cells involved in wound healing is
(A) Fibronectin (B) Laminin and Collagen
(C) Tyrosine kinase (D) Hyaluronic acid

- Q.19 The appearance of red, swollen nasal mucosa from allergy to ragweed pollen has been mediated by
- (A) Complement c3b and Immunoglobulin G
 - (B) PAF
 - (C) TNF
 - (D) Histamine
- Q.20 The most common outcome of Pulmonary thromboembolism is
- (A) Sudden death
 - (B) Cor pulmonale
 - (C) Hemoptysis and Dyspnea
 - (D) No symptoms
- Q.21 Over several decades, which of the following inhaled pollutants is most likely to produce extensive pulmonary fibrosis
- (A) Silica
 - (B) Tobacco smoke
 - (C) Ozone
 - (D) Wood dust
- Q.22 The most common Lysosomal storage disorder is
- (A) Gaucher's disease
 - (B) Taylach's disease
 - (C) Wolman disease
 - (D) Niemann pick's disease
- Q.23 Colonic bacteria, on digestion of dietary fibres would give
- (A) Free radicals
 - (B) Glycerol
 - (C) Butyrate
 - (D) Sucrose
- Q.24 The upper motor neuron impairment produces the following change of muscles tone
- (A) Flaccidity
 - (B) Spasticity
 - (C) Cog wheel rigidity
 - (D) Myoclonia
- Q.25 In initial stage of Parkinson disease the most typical involuntary movement is the following
- (A) Chorea
 - (B) Atetosis
 - (C) Tremor
 - (D) Dystonia
- Q.26 Neurogenic shock following head injury is characterized by
- (A) Hypertension and tachycardia
 - (B) Hypertension and bradycardia
 - (C) Hypotension and bradycardia
 - (D) Hypotension and tachycardia

- Q.27 Which of the following is not an etiologic factor for Pancreatitis
- (A) Abdominal trauma (B) Alcohol consumption
(C) Islet cell hyperplasia (D) Gall stone disease
- Q.28 The most serious complication of Pelvic fracture is
- (A) Mal union (B) Neurogenic shock
(C) Rectal injury (D) Hypovolumic shock
- Q.29 Parotid tumour showing perineural spread
- (A) Pleomorphic adenoma (B) Warthin tumour
(C) Adenoid cystic carcinoma (D) Mucoepidermoid carcinoma
- Q.30 Most uncommon lesion in the Anorectal region of a child
- (A) Anal fissure (B) Haemorrhoids
(C) Juvenile polyp (D) Fistula in ano
- Q.31 Blood stained nipple discharge indicates
- (A) Duct papilloma (B) Fibroadenoma
(C) Breast abscess (D) Paget's disease
- Q.32 Bochdaleck's hernia occurs through a gap
- (A) Between sternal and costal heads of diaphragm
(B) Gap in the posterolateral part of diaphragm
(C) Esophageal hiatus
(D) Central tendon
- Q.33 Circumcision is contraindicated in
- (A) Phimosis
(B) Paraphimosis
(C) Hypospadias
(D) Balanoposthitis
- Q.34 Ballance's sign is related to
- (A) Obstructed inguinal hernia (B) Obstructed femoral hernia
(C) Splenic injury (D) Acute haemorrhagic pancreatitis

- Q.35 Femoral hernia in Nyhus classification is of type
(A) IIIA (B) II (C) IIIC (D) IV
- Q.36 In Treacher Collins Syndrome all are seen except
(A) Coloboma of lower lid (B) Obtuse mandibular angle
(C) Very low intelligence (D) Cleft palate
- Q.37 Ponds fracture is seen in
(A) Child (B) Youth (C) Adult (D) Elderly
- Q.38 Painless profuse paroxysmal haematuria is seen in
(A) Renal cell Carcinoma (B) Wilms' tumour
(C) Angiomyolipoma (D) Transitional cell papilloma
- Q.39 Osgood-Schlatter disease is
(A) Apophysitis of tibial tuberosity (B) Spontaneous rupture of the tendoachilles
(C) Tenosynovitis at abductor tendons of wrist (D) Bursitis on lateral malleolus
- Q.40 Ludwig's angina is
(A) Retropharyngeal abscess (B) Peritonsillar abscess
(C) Submandibular cellulitis (D) Follicular tonsillitis
- Q.41 Treatment of choice in neglected club foot in a 14yr old boy
(A) Dwyer osetomy (B) Tripple arthrodesis
(C) Medial soft tissue release (D) Midtarsal amputation
- Q.42 Most common intracranial complication of CSOM
(A) Lateral sinus thrombosis (B) Meningitis
(C) Temporal lobe abscess (D) Extradural abscess

- Q.43 Treatment of choice for antrochoanal polyp arising from medial wall of maxilla
- (A) Functional endoscopic sinus surgery and polypectomy
 - (B) Medial maxillectomy
 - (C) Caldwell – Luc operation
 - (D) Intranasal polypectomy
- Q.44 Which is false with Bell's Palsy
- (A) Unilateral affection
 - (B) Herpes Simplex virus is commonly implicated
 - (C) Early surgical decompression is recommended
 - (D) Steroids are useful in the treatment
- Q.45 Delorme's procedure is done for
- (A) Horse Shoe fistula
 - (B) Sigmoid volvulus
 - (C) Anal fissure
 - (D) Rectal prolapse
- Q.46 Which of the following is not resected in stapedectomy
- (A) Anterior crus of stapes
 - (B) Posterior crus of stapes
 - (C) Stapedial ligament
 - (D) Lenticular process of incus
- Q.47 Osteoblastic secondaries are commonly seen in primary malignancies of
- (A) Breast
 - (B) Lung
 - (C) Adrenal
 - (D) Prostate
- Q.48 Shortening of limb with flexion, adduction and internal rotation occurs in
- (A) Anterior dislocation of hip
 - (B) Posterior dislocation of hip
 - (C) Fracture of neck of femur
 - (D) Central dislocation of hip
- Q.49 Gallows traction is given for
- (A) Cervical spine fracture
 - (B) Calcaneal fracture
 - (C) Fracture of shaft femur in children
 - (D) Fracture of ribs
- Q.50 Onion peel appearance on X-ray is characteristic in
- (A) Osteosarcoma
 - (B) Osteoclastoma
 - (C) Ewing Sarcoma
 - (D) Chondroblastoma

- Q.51 Steroid hormones of placenta are produced by
- (A) Decidua basalis (B) Cytotrophoblast
(C) Syncytiotrophoblast (D) Haffbauer's cells
- Q.52 What is not a cause of DIC in obstetrics
- (A) Abruptio placentae (B) Missed abortion
(C) Threatened abortion (D) Intrauterine foetal death
- Q.53 Presence of lutein cyst in hydatidiform mole is due to excess
- (A) hCG (B) Oestrogen
(C) Progesterone (D) Prolactin
- Q.54 Diagnostic histological picture of Krukenberg's tumour is
- (A) Psammoma bodies (B) Subnuclear vacuolation
(C) Signet ring cells (D) Call-Exner bodies
- Q.55 Gonadectomy is indicated in
- (A) Androgen insensitivity syndrome (B) Klinefelter's syndrome
(C) Mullerian agenesis (D) Isosexual precocious puberty
- Q.56 Left ovarian vein drains into
- (A) Inferior vena cava (B) Left common iliac vein
(C) Left hypogastric vein (D) Left renal vein
- Q.57 What is not correct about ovulation
- (A) Causes biphasic Basal Body Temperature
(B) Decreases serum progesterone level
(C) Occurs 24 hours after LH surge
(D) Occurs 14 days prior to next menstruation
- Q.58 Which one is not a virilizing tumour of ovary
- (A) Sertoli Ledig cell tumour (B) Arrhenoblastoma
(C) Adrenal like tumour of ovary (D) Granulosa cell tumour

- Q.59 Which microbial agent causes carcinoma of cervix
(A) HIV (B) HPV
(C) CMV (D) Trichomonas vaginalis
- Q.60 Prolonged use of combined oral contraceptive pill definitely reduces the risk of malignancy of which organ
(A) Ovary (B) Breast (C) Cervix (D) Liver
- Q.61 What is usually the serum FSH level (in IU/Litre) in post menopausal women
(A) Less than 2 (B) 5-10
(C) 15-20 (D) 40 or more
- Q.62 What is not true about HCG in normal pregnancy
(A) It's a glycoprotein
(B) Peak serum level at 60-70 days of pregnancy
(C) Serum doubling time is 1.4-2 days
(D) Disappears from serum within 2 days of delivery
- Q.63 "Clue cells" are characteristic of which condition
(A) Bacterial vaginosis (B) Trichomonas vaginitis
(C) Atrophic vaginitis (D) Vaginal candidiasis
- Q.64 Which antihypertensive is contraindicated during pregnancy
(A) Hydralazine (B) Ace inhibitors
(C) Labetalol (D) Methyl dopa
- Q.65 Which one is not a protein hormone
(A) LH (B) Human Placental Lactogen
(C) TSH (D) Oestrogen
- Q.66 Commonest cause of first trimester abortion is
(A) Chromosomal abnormality of conceptus
(B) Incompetent cervix
(C) Uterine malformation
(D) Intrauterine infection

- Q.67 Prolactin secretion is inhibited by
- (A) Thyrotrophin releasing hormone (B) Metoclopramide
(C) Dopamine (D) Phenothiazine
- Q.68 Active management of third stage of labour should be practiced in
- (A) All laboring mothers
(B) Only in cases with high risk of PPH
(C) Only in cases with past history of PPH
(D) Only in case of prolonged labour
- Q.69 Partograph is promoted by WHO mainly to
- (A) Prevent prolonged & obstructed labour
(B) Prevent foetal distress
(C) Promote institutional delivery
(D) Shorten duration of labour
- Q.70 Which one is not correctly paired
- (A) Vaginal Ph – Doderlein’s bacillus
(B) Medical abortion – Mifepristone
(C) Tocolysis – Ritodrine
(D) Oligohydramnios – Oesophageal atresia
- Q.71 Transmission of HIV to child from HIV positive mother is mostly
- (A) Transplacental
(B) Through contamination during vaginal delivery
(C) Via breast milk
(D) Through body contact after birth
- Q.72 Commonest Malignant germ cell tumour of ovary is
- (A) Yolk sac tumour (B) Dysgerminoma
(C) Nongestational choriocarcinoma (D) Clear cell carcinoma
- Q.73 Neural tube defect can be prevented by supplementation of maternal diet in preconceptional period and early pregnancy with
- (A) Folic acid (B) Iron (C) Calcium (D) Iodine

- Q.74 Kangaroo mother care for preterm baby is used to prevent
 (A) Hypoglycaemia (B) Hypothermia
 (C) Hypovolemia (D) Hyperbillirubinaemia
- Q.75 Route of administration of surfactant for treatment of Respiratory Distress Syndrome (RDS) is
 (A) Intranasal (B) Oral (C) Intravenous (D) Intratracheal
- Q.76 If ω is a complex cube root of unity, then $(1 + \omega)^5$ is
 (A) -1 (B) $-\omega$ (C) ω (D) 0
- Q.77 Which of the following is true
 (A) $2 + 3i > 1 + 3i$ (B) $|3 + 4i| = 7$
 (C) $\arg i = 0$ (D) $|i| = 1$
- Q.78 If $a + ib = 3 - 6i$, then
 (A) $a = 3, b = 6$ (B) $a = -6, b = -3$
 (C) $a = 3, b = -6$ (D) $a = -3, b = 6$
- Q.79 If the equation $x^2 - 15 - m(2x - 8) = 0$ has equal roots, then a value of m is
 (A) 1 (B) 2 (C) 3 (D) 4
- Q.80 The 31th term of the progression 49, 44, 39, 34, ... is
 (A) -71 (B) -76 (C) -66 (D) -61
- Q.81 The distance of the point $(3, -5)$ from the line $3x - 4y - 24 = 0$ is
 (A) 2 (B) $\frac{2}{5}$ (C) $\frac{3}{5}$ (D) 1

Q.82 The x intercept of the line $3x + y - 5 = 0$ is

- (A) $\frac{3}{5}$ (B) $\frac{5}{3}$ (C) 1 (D) 5

Q.83 The slope of the line which is perpendicular to the line passing through the point $(1, -1)$ and $(3, 5)$ is

- (A) 3 (B) -3 (C) $\frac{1}{3}$ (D) $-\frac{1}{3}$

Q.84 $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x}$ is

- (A) $\frac{1}{2}$ (B) 1 (C) 0 (D) $-\frac{1}{2}$

Q.85 Which of the following is True

- (A) $f(x) = |x - 1|$ is differentiable at $x = 1$.
(B) $f(x) = \sin x$ is an even function.
(C) Every continuous function is differentiable.
(D) $f(x) = x|x|$ is differentiable at $x = 0$.

Q.86 If $y = \sin x^2$, then the value of $\frac{dy}{dx}$ is

- (A) $\cos x^2$ (B) $-\cos x^2$ (C) $2x \cos x^2$ (D) $-2x \cos x^2$

Q.87 If $y = 2^x + \ln x$, then the value of $\frac{dy}{dx}$ is

- (A) $2^x \ln 2 + \frac{1}{x}$ (B) $2^x + \frac{1}{x}$ (C) $2^x \ln x$ (D) $2^x + \frac{1}{x} \ln 2$

Q.88 The value of $\int e^x [\tan x - \ln \cos x] dx$ is

- (A) $e^x \tan x + c$ (B) $e^x \ln \cos x + c$
(C) $e^x \ln \sec x + c$ (D) $e^x \ln \sin x + c$

- Q.89 The value of $\int \frac{x}{x^2+1} dx$ is
- (A) $\ln(x^2+1) + c$ (B) $\frac{1}{2}\ln(x^2+1) + c$
 (C) $\frac{1}{x^2+1}$ (D) $\ln(x^2+1) + c$
- Q.90 The value of $\int_0^2 [x] dx$ ($[x]$ is the greatest integer value function) is
- (A) 0 (B) 1 (C) 3 (D) 2
- Q.91 The number of mole (s) of solute per kilogram of solvent is known as
- (A) Normality (B) Molarity (C) Molality (D) Formality
- Q.92 The reaction of lithium metal with nitrogen gives
- (A) Li_3N (B) LiN_3 (C) Li_2N (D) Li_2N_2
- Q.93 The number of P-O-P linkages present in P_4O_{10} is
- (A) 2 (B) 4 (C) 6 (D) 8
- Q.94 The reaction of chlorine gas with cold water produces
- (A) HOCl and HCl (A) HOCl and Cl_2O
 (C) HOCl and HClO_2 (D) HOCl and HClO_3
- Q.95 Citric acid is a
- (A) monobasic acid (B) dibasic acid
 (C) tribasic acid (D) tetrabasic acid
- Q.96 The formula of bauxite is
- (A) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ (B) $\text{AlCl}_3 \cdot 2\text{H}_2\text{O}$
 (C) KAlSi_3O_8 (D) NaAlF_6
- Q.97 Glucose is a
- (A) Reducing sugar (B) Ketonic compound
 (C) Hydrocarbon (D) Organic acid

Q.98 When electrolysis of CuSO_4 solution is carried out using Cu electrode, the anodic reaction is

- (A) $\text{Cu} \rightarrow \text{Cu}^{2+} + 2\text{e}^-$ (B) $\text{H}_2\text{O} \rightarrow 1/2\text{O}_2 + 2\text{H}^+ + 2\text{e}^-$
(C) $\text{H}_2 + 2\text{HO}^- \rightarrow 2\text{H}_2\text{O} + 2\text{e}^-$ (D) $\text{SO}_4^{2-} + 4\text{H}^+ \rightarrow \text{SO}_2 + 2\text{H}_2\text{O} + 2\text{e}^-$

Q.99 Silver chloride dissolves in aqueous ammonia due to the formation of

- (A) $[\text{Ag}(\text{NH}_3)_2]^+$ (B) $[\text{Ag}(\text{OH})_2]^-$
(C) $[\text{Ag}(\text{H}_2\text{O})_2]^+$ (D) $[\text{Ag}(\text{NH}_2)_2]^-$

Q.100 The colorless gas produced from the reaction of aluminum carbide (Al_4C_3) with water is

- (A) cyclopropane (B) propane
(C) ethane (D) methane

Q.101 An acidic buffer solution can be prepared by mixing

- (A) sulfuric acid with sodium chloride (B) sulfuric acid with sodium hydroxide
(C) ammonium chloride with ammonium hydroxide (D) ammonium acetate with acetic acid

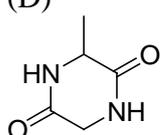
Q.102 Heat of reaction is independent of

- (A) temperature (B) pressure
(C) physical state (D) reaction paths

Q.103 Bromine vapor is best scavenged by treatment with aqueous

- (A) sodium sulfate (B) sodium sulfite
(C) sodium acetate (D) sodium benzoate

Q.104 Treatment of alanyl glycine with 6 N HCl at 110 °C for 3 days yields

- (A) $\text{H}_2\text{N}-\text{CH}(\text{CH}_3)-\text{CO}_2\text{H} + \text{H}_2\text{N}-\text{CH}_2-\text{CO}_2\text{H}$ (B) $\text{H}_2\text{N}-\text{CH}(\text{CH}_3)-\text{C}(=\text{O})-\text{NH}-\text{CH}_2-\text{OH} + \text{HCO}_2\text{H}$
(C) $\text{HO}-\text{CH}(\text{CH}_3)-\text{CO}_2\text{H} + \text{HO}-\text{CH}_2-\text{CO}_2\text{H} + \text{NH}_4\text{Cl}$ (D) 

- Q.105 If the half life of a radioactive element is 100 days, one gram of the element will, after 400 days, weigh (in g)
 (A) 0.5 (B) 0.25 (C) 0.166 (D) 0.125
- Q.106 A man runs at a speed of 4.0 m.sec^{-1} to overtake a standing bus. When he is 6 m behind the door of the bus, the bus starts to move forward with a constant acceleration of 1.2 m.sec^{-2} . Shortest time (in sec) in which he reaches the door is
 (A) 7.9 (B) 2.3 (C) 1.3 (D) 0.67
- Q.107 A 60 kg archer stands at rest on frictionless ice and fires a 0.5 kg arrow horizontally at a speed 50 m.sec^{-1} . The speed at which the archer moves across the ice after firing the arrow is
 (A) 42 cm.sec^{-1} in the direction same as that of the arrow
 (B) 42 cm.sec^{-1} in the direction opposite to that of the arrow
 (C) 60 cm.sec^{-1} in the direction opposite to that of the arrow
 (D) 60 cm.sec^{-1} in the direction same as that of the arrow
- Q.108 A ball is tied at the end of the string and whirled in a circle of radius 0.750 m. At a particular instant during its motion, the ball has an angular velocity of $3.60 \text{ rad. sec}^{-1}$ and angular deceleration of $5.25 \text{ rad.sec}^{-2}$. The magnitudes of the tangential and centripetal acceleration (in m.sec^{-2}) of the ball at any instant are
 (A) 3.94 and 9.72 respectively
 (B) 9.72 and 3.94 respectively
 (C) 2.95 and 2.70 respectively
 (D) 2.70 and 2.95 respectively
- Q.109 An ideal gas in the cylinder is adiabatically compressed to 1/15 of its initial volume. The ratio of the specific heat of the gas at constant pressure and constant volume is 1.4. If the initial temperature is 27°C , the temperature (in $^\circ\text{C}$) of the gas after the compression is
 (A) 4500 (B) 886 (C) 613 (D) 80
- Q.110 Which of the following functions represents a plane wave of frequency ω and travelling along the x direction? [a is a constant]
 (A) $\phi = a \cos(\omega t - y)$
 (B) $\phi = a \cos(\omega t - x)$
 (C) $\phi = \frac{a \cos(\omega t - x)}{x}$
 (D) $\phi = a \sin x \cos(\omega t)$

- Q. 111 A string is fixed at one end. A transverse sinusoidal wave of wavelength λ , generated at the other end, forms the first harmonic of the stationary wave on the string. The length of the string is
 (A) $\lambda/4$ (B) $\lambda/2$ (C) λ (D) 2λ
- Q. 112 The refractive index of oil is 1.48 and water is 1.33. The critical angle (in $^\circ$)of total internal reflection for the oil-water boundary is close to
 (A) 43 (B) 49 (C) 64 (D) 69
- Q. 113 There are incoherent N sources. Each one emits light of intensity I and has random, rapidly varying phase. The observed intensity of light arising from the superposition of light from these N sources is
 (A) equal to NI (B) equal to N^2I (C) greater than NI (D) less than NI
- Q. 114 Three charges, $Q_1=2\times 10^{-9}$ Coulomb, $Q_2=-3\times 10^{-9}$ Coulomb and $Q_3=5\times 10^{-9}$ Coulomb are placed in a line. Q_1 and Q_2 are placed on the same side of Q_3 and are at a distance 2 cm and 4 cm, respectively, from the charge Q_3 . The Coulomb force constant is 9×10^9 Newton.meter².coulomb⁻². The magnitude of the net force (in Newton) exerted by Q_1 and Q_2 on Q_3 is
 (A) 1.41×10^{-4}
 (B) 3.09×10^{-4}
 (C) 6.41×10^{-4}
 (D) 12.7×10^{-4}
- Q. 115 The magnetic flux through a spark coil of 1000 turns changes from 0.5 Wb to zero in 0.01 sec. The emf (in V) induced in the coil is
 (A) 5 (B) 50 (C) 5000 (D) 50000
- Q. 116 An electric blanket that is connected to a 220 V outlet consumes 0.140 kW. The current (in amp) through the blanket is
 (A) 0.011 (B) 0.103 (C) 0.636 (D) 1.17
- Q. 117 Assume that the nitrogen molecules in the atmosphere follows the Maxwell-Boltzmann statistics and the Earth's atmosphere is pure nitrogen in thermodynamic equilibrium at temperature of 300 K. The height (in m) above the sea level at which the density of the atmosphere is one half of sea-level value is [Given. Molecular weight of nitrogen is 28 gm/mol, Boltzmann's constant = 1.38×10^{-23} J/K, acceleration due to gravity= 10 m.sec⁻², Avogadro number= 6.023×10^{23} mol⁻¹].
 (A) 4840 (B) 6173 (C) 9680 (D) 61730

- Q. 118 The electron in a Hydrogen atom is excited from its ground state to excited state of $n=3$. The energy of electron in its ground state is -13.6 eV. The energy (in eV) that was given to the electron for this transition
- (A) 1.5 (B) 4.5 (C) 12.1 (D) 40.8
- Q. 119 Ultraviolet radiation incident on an aluminum foil emits photoelectrons of kinetic energy 3.5 eV and the work function of aluminum is about 4.1 eV, The frequency (in Hz) of the photons that produce the photoelectrons is
[given: Planck's constant $h=4.14 \times 10^{-15}$ eV.sec]
- (A) 3.2×10^{14} (B) 1.4×10^{14} (C) 1.8×10^{15} (D) 3.2×10^{15}
- Q. 120 It is believed that there is a clear link between breathing high concentrations of radon (Rn) and incidence of lung cancer. The half life of ^{222}Rn is 3.8 days. The activity (in decays/sec) of 1.00 mg of ^{222}Rn is close to [given $1\text{amu}=1.66 \times 10^{-27}$ kg]
- (A) 1.06×10^6
(B) 2.72×10^{12}
(C) 2.11×10^{-6}
(D) 5.73×10^{12}

END OF THE QUESTION PAPER

SPACE FOR ROUGH WORK

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