PROVISIONAL ANSWER KEY

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Question1:-A particle of mass m moves in a plane, its motion defined by (r, θ) under the influence of a force $F = -kr$ directed towards the origin. The Lagrangian of the system is given by

A:-$\frac{1}{2}m\dot{r}^2 + \frac{1}{2}kr^2$

B:-$\frac{1}{2}m\dot{r}^2 + \frac{1}{2}mr^2\dot{\theta}^2 - \frac{1}{2}kr^2$

C:-$\frac{1}{2}m\dot{r}^2 + \frac{1}{2}mr^2\dot{\theta}^2 + \frac{1}{2}kr^2$

D:-None of these

Correct Answer:- Option-B

Question2:-The Hamiltonian corresponding to the Lagrangian $\mathrm{L} = a\dot{x}^2 + b\dot{y}^2 + kxy$ is

A:-$\frac{Px^2}{2a} + \frac{Py^2}{2b} + kxy$

B:-$\frac{Px^2}{4a} + \frac{Py^2}{4b} - kxy$

C:-$\frac{Px^2}{4a} + \frac{Py^2}{4b} + kxy$

D:-$\frac{Px^2 + P\,y^2}{4ab} + kxy$

Correct Answer:- Option-B

Question3:-The Lagrangian for the Kepler problem is given by $L=\frac{1}{2}(\dot{r}^2+r^2\dot{\theta}^2-\frac{\mu}{r}(\mu>0))$ where r,θ denote the polar coordinates and mass of the particle is unity. Then

A:-$p_\theta=2r^2\dot{\theta}$

B:-$p_r=2\dot{r}$

C:-The total energy of the particle is time dependent

D:-The angular momentum of the particle about the centre of attraction is a constant

Correct Answer:- Option-D

Question4:-A bead of mass *m* slides along a straight frictionless rigid wire rotating in a horizontal plane with a constant angular speed *w*. The axis of rotation is perpendicular to the wire and passes through one end of the wire. If *r* is the distance of the mass from the axis of rotation and *v* is its speed then the magnitude of the coriolis force is

A:-*mvw*

B:-2*mvw*

C:-$\frac{mv^2}{r}$

D:-$\frac{2mv^2}{r}$

Correct Answer:- Option-B

Question5:-The value of the Poisson bracket $[\vec{m}\,.\,\vec{r}\,,\,\vec{n}\,.\,\vec{p}\,]$ where $\vec{m}$ and $\vec{n}$ are constant vectors is

A:-$\vec{m}\ \vec{n}$

B:-$\vec{m}-\vec{n}$

C:-$\vec{m}+\vec{n}$

D:-$\vec{m}\,.\,\vec{n}$

Correct Answer:- Option-A

Question6:-A particle of mass *m* moves under the action of a central force whose potential is $\nu(\mathrm{r})=\kappa m r^2 (k>0)$, then energy for which the orbit will be a circle of radius *a* about the origin is _____

A:-$m\kappa a^2$

B:-$\frac{3}{2}mka^2$

C:-$\frac{1}{2}mka$

D:-$\frac{1}{2}mka^2$

Correct Answer:- Option-A

Question7:-In logistic map function for $A<1$, the number of fixed points is _____

A:-0

B:-1

C:-2

D:-3

Correct Answer:- Option-B

Question8:-The value of $[J_{-1/2}(\mathrm{x})+J_{1/2}(\mathrm{x})]$ is

A:-sin *x* + cos *x*

B:-sin x - cos *x*

C:-$\sqrt{\frac{2}{\pi x}}(sinx+cos\mathrm{x})$

D:-$\sqrt{\frac{2}{\pi x}}(sinx-cos\mathrm{x})$

Correct Answer:- Option-C

Question9:-The Fourier transform of the function *f*(*x*) is $\mathrm{F}(\kappa)=\int e^{-ikx}\mathrm{f}(\mathrm{x})\,dx$. The Fourier transform of $\frac{d\mathrm{f}(\mathrm{x})}{dx}$ is _____

A:- $\frac{d\mathrm{F(k)}}{dk}$

B:- $\int \frac{\mathrm{F(k)}}{dk}$

C:- $-i\mathrm{kF(k)}$

D:- $i\mathrm{kF(k)}$

Correct Answer:- Option-C

Question10:-The value of $\int_{-1}^{+1} \mathrm{P_0(x)}dx$ using Rodrigues formula is _____

A:-1

B:--1

C:-2

D:--2

Correct Answer:- Option-C

Question11:-Which of the following is not correct for Hermite polynomials?

A:- $\mathrm{H_0(x)} = 1$

B:- $\mathrm{H_1(x)} = 2\mathrm{x}$

C:- $\mathrm{H_2(x)} = 4x^2 - 2$

D:- $\mathrm{H_3(x)} = 6x^2 - 4x$

Correct Answer:- Option-D

Question12:-Expand as a Fourier series the function $\mathrm{f(x)}=x^2$ in the interval $-\pi < x < \pi$, the value of $\sum_{n=1}^{\infty} \frac{1}{n^2}$ is _____

A:- $\frac{1}{2}$

B:- $\frac{\pi^2}{2}$

C:- $\frac{\pi^2}{6}$

D:- $\frac{\pi^2}{8}$

Correct Answer:- Option-C

Question13:-The residue of cot z at $z = 0$

A:--1

B:-1

C:-π

D:-$\frac{\pi}{2}$

Correct Answer:- Option-B

Question14:-The value of $\int_c \frac{dz}{z^2-1}$, where C is a circle $x^2+y^2=4$, is _____

A:-0

B:-1

C:--1

D:-2π

Correct Answer:- Option-A

Question15:-Which of the following is NOT true?

A:-Daisy Chaining is a hardware approach

B:-In Daisy Chaining all interrupts are serviced by branching to the same service program

C:-In Daisy Chaining all the devices that can request an interrupt are connected in a serial manner

D:-Daisy Chaining is more efficient than Polling

Correct Answer:- Option-B

Question16:-Which 8085 microprocessor functional unit stores the memory address of the subsequent instruction to be performed in a 16-bit register?

A:-Program Counter

B:-Accumulator

C:-Instruction register

D:-Flag Register

Correct Answer:- Option-A

Question17:-Which register's flag bits are affected when arithmetic operations are performed by the microcontroller?

A:-Data Pointer (DPTR)

B:-Stack Pointer (SP)

C:-Program Counter (PC)

D:-Program Status Word (PSW)

Correct Answer:- Option-D

Question18:-The number of comparators required in an n-bit flash type analog to digital converter is _____

A:-$2n-1$

B:-n^2-1

C:-2^n-1

D:-$2n^2-1$

Correct Answer:- Option-C

Question19:-In the event that a highest priority interrupt occurs in 8085 Microprocessor, the call location is _____

A:-002CH

B:-003CH

C:-0034H

D:-0024H

Correct Answer:- Option-D

Question20:-Which kind of data transfer is employed when the timing characteristics of the input-output device are not precisely known?

A:-Direct Data Transfer

B:-Simple Data Transfer

C:-Status Check Data Transfer

D:-Interrupt Driven Data Transfer

Correct Answer:- Option-D

Question21:-What is the purpose of Sample and Hold circuits in Analog to Digital converters?

A:-To stabilize the ADC step wave form during the conversion

B:-To stabilize the input analog signal during the conversion process

C:-To stabilize the threshold voltage of the ADC during the conversion process

D:-To control the output of the binary counter during the conversion process

Correct Answer:- Option-B

Question22:-Which of the following is FALSE for a photodiode connected in reverse bias?

A:-The photocurrent flows in reverse direction

B:-The width of the depletion layer increases

C:-The built-in voltage increases

D:-Photocurrent is large when the photodiode is in reverse bias

Correct Answer:- Option-A

Question23:-Differential gain of an OPAMP is measured as 200. To measure the common mode gain, 1.0 V is applied common to both the inputs, and the output voltage is measured as 0.01 V. The CMRR is

A:-46 dB

B:-66 dB

C:-86 dB

D:-106 dB

Correct Answer:- Option-C

Question24:-A Schmidt trigger _____

A:-is an inverting comparator with positive feedback

B:-possess memory and can act as a bistable multivibrator

C:-Only 1 is correct and 2 is wrong

D:-Both 1 and 2 are correct

Correct Answer:- Option-D

Question25:-What is the value of Rs required to self-bias a p-channel JFET with I_{DSS} = 25 mA, $V_{GS\ (off)}$ = 20 V and V_{GS} = 10V.

A:-1.6 $k\Omega$

B:-16 $k\Omega$

C:-0.16 $k\Omega$

D:-16 Ω

Correct Answer:- Option-A

Question26:-Aliasing in radio communication refers to _____

A:-Matching the frequencies of the signal at the transmitter as well as the receiver

B:-Combining multiple data streams over a single data channel

C:-Sampling of signals greater than at Nyquist rate

D:-Reducing the bandwidth of the signal to be transmitted

Correct Answer:- Option-C

Question27:-A satellite in a sub-synchronous orbit _____

A:-Has an orbital period that matches with the rotational period of earth

B:-Has a period shorter than the Earth’s rotational period, causing the satellite to move westward relative to the Earth’s surface

C:-Has a period larger than the Earth's rotational period, causing the satellite to move eastward relative to the Earth’s surface

D:-Passes over the poles of the earth

Correct Answer:- Option-B

Question28:-A solar cell has an open circuit voltage of 4.0 V. and a short circuit current of 50mA. The fill factor is 50%. What is the efficiency if he light used during the measurement was AM 1.5 and 1000W/m^2 and the area of the cell is 50cm^2?

A:-6%

B:-0.2 %

C:-12 %

D:-2%

Correct Answer:- Option-D

Question29:-The phase space trajectory of a body which is thrown vertically upwards is a

A:-Circle

B:-Parabola

C:-Straight line

D:-Rectangle

Correct Answer:- Option-B

Question30:-The magnitude of Fermi wave vector of 4 x 10^{21} electrons confined in a box of volume 1 cm^3 is approximately

A:-1.25A^0

B:-120 nm

C:-12.5A^0

D:-100A^0

Correct Answer:- Option-C

Question31:-A particle of spin ½ and magnetic moment μ is placed in a uniform magnetic field B. Its partition function is _____

A:-$2sinh(\frac{\mu B}{kT})$

B:-$2\tanh(\frac{\mu B}{kT})$

C:-$2\cos h(\frac{\mu B}{kT})$

D:-$\exp(\frac{\mu B}{kT})$

Correct Answer:- Option-C

Question32:-The number of ways of distributing 11 indistinguishable bosons in 3 different energy levels is

A:-3^{11}

B:-11^3

C:-$\frac{(13)!}{2!(11)!}$

D:-$\frac{(11)!}{3!8!}$

Correct Answer:- Option-C

Question33:-If the number density of a free electron gas in three dimension is increased eight times, its fermi temperature will

A:-Increase by a factor of 4

B:-Decrease by a factor of 4

C:-Increase by a factor of 8

D:-Decrease by a factor of 8

Correct Answer:- Option-A

Question34:-For a low-density gas at low temperature, only the translational and rotational modes of molecules are excited. The specific heat of the gas is

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A:-k_B

B:-$\frac{1}{2}k_B$

C:-$\frac{3}{2}k_B$

D:-$\frac{5}{2}k_B$

Correct Answer:- Option-D

Question35:-For an ideal spin 1/2 fermi gas in the presence of an external magnetic field B, the low field susceptibility per unit volume of the gas χ_0 is proportional to

A:-E_F

B:-E_F^3

C:-$(E_F)^{3/2}$

D:-$(E_F)^{1/2}$

Correct Answer:- Option-D

Question36:-Find the probability current density for the wave function, $\psi = U\, exp i(ax - wt)$

A:-$\frac{\hbar w}{m}|U|^2$

B:-$\frac{\hbar w}{a}U$

C:-$\frac{\hbar a}{m}|U|^2$

D:-$\frac{\hbar a}{m}U$

Correct Answer:- Option-C

Question37:-The Hamiltonian of a harmonic oscillator is $H=\frac{P^2}{2m}+V_{(r)}$. Find the value of $[x,[x,H]]$

A:-$\frac{i\hbar}{m}P_x$

B:-$-\frac{i\hbar}{m}P_y$

C:- $\frac{-\hbar^2}{m}$

D:- $-m\hbar^2$

Correct Answer:- Option-C

Question38:-For an electron, the spin angular momentum is always

A:-the same, $h/2\pi$

B:-the same, $h/4\pi$

C:-integral multiple of $h/2\pi$

D:-half integral multiple of $h/2\pi$

Correct Answer:- Option-B

Question39:-For the Pauli Spin matrices, find the value of
(i) $\hat{\sigma}_x\hat{\sigma}_y + \hat{\sigma}_y\hat{\sigma}_x$ and (ii) $[\hat{\sigma}_x\hat{\sigma}_y]$

A:-0, 2i $\hat{\sigma}_z$

B:-1, 2i $\hat{\sigma}_z$

C:-i $\hat{\sigma}_y$,1

D:-0, i $\hat{\sigma}_z$

Correct Answer:- Option-A

Question40:-Which statements are wrong in connection with Fermi Golden rule?
I. This rule gives the transition probability per unit time
II. Is non-zero only between continuum states of the different energy.
III. Is proportional to the density of final states
IV. Is proportional to $|H^{(1)}_{ml}|$ of the perturbation connecting the state

A:-I and II

B:-III and IV

C:-II and III

D:-II and IV

Correct Answer:- Option-D

Question41:-In a linear Stark effect, the application of an external uniform electric field,

A:-Completely lifts the degeneracy of n = 2 level of H_2 atom and splits the n = 2 level into four levels

B:-Completely lifts the degeneracy of n = 2 level of H_2 atom and splits the n = 2 level into two levels

C:-Does not affect the n = 2 level

D:-Completely lifts the degeneracy of n = 2 level of H_2 atom and splits the n = 2 level into three levels

Correct Answer:- Option-D

Question42:-In the particle wave expansion, the differential scattering cross-section is given by $\frac{d\sigma}{\mathrm{d}(\cos\theta)} = \left| \sum_l (2l+1) e^{i\delta_l} \sin\delta_l \mathrm{P}_l(\cos\theta) \right|^2$ where θ is the scattering angle. For a certain neutron-nucleus scattering, it is found that the two lowest phase shifts δ_0 and δ_1 corresponding to s-wave and p-wave respectively, satisfy $\delta_1 = \delta_0/2$. Assuming that the other phase shifts are negligibly small, the differential scattering cross section reaches its minimum for $\cos\theta$ equal to _____

A:-1

B:-± 1

C:-$-\frac{2}{3}\cos^2\delta_1$

D:-$\frac{1}{3}\cos^2\delta_1$

Correct Answer:- Option-C

Question43:-If the radius of $^{24}_{13}\mathrm{A}l$ is measured to be 3.6 Fermi, the radius of $^{64}_{29}\mathrm{C}u$ nucleus is approximately

A:-$4.8\mathrm{A}^0$

B:-4.8×10^{-13} cm

C:-4.2 fm

D:-$4.2\mathrm{A}^{0}$

Correct Answer:- Option-B

Question44:-The dominant interactions underlying the following decay processes

(i) $\Delta^{*} \rightarrow p + \pi$

(ii) $\mathrm{K}^{+} \rightarrow \mu^{+} + \gamma_{\mu}$

(iii) $\mathrm{K}^{0} \rightarrow \pi^{+} + \pi^{-}$

A:-(i) strong, (ii) electromagnetic and (iii) weak

B:-(i) strong, (ii) weak and (iii) weak

C:-(i) strong, (ii) strong and (iii) weak

D:-(i) weak, (ii) electromagnetic and (iii) strong

Correct Answer:- Option-B

Question45:-

If the coefficients for the Coulomb and the asymmetry energy are $a_3 = 0.595$ MeV and $a_4 = 19.0$ MeV respectively, the most stable isobar with mass number A = 25 is

A:-$^{25}_{12}\mathrm{N}a$

B:-$^{25}_{12}Mg$

C:-$^{25}_{13}Al$

D:-$^{28}_{14}\mathrm{S}i$

Correct Answer:- Option-B

Question46:-A particle which is a composite state of three quarks, *u, u* and *d*, has electric charge, spin and strangeness equal to

A:--1, 3/2, 0

B:-1, 3/2, 0

C:-1, 1/2, 0

D:-1, 1, 0

Correct Answer:- Option-C

Question47:-If Q is the total energy released in the spontaneous α-decay process of $^{238}_{92}U$ nucleus which is initially at rest, the energy carried by α-particle is

A:-$\frac{117}{119}Q$

B:-$\frac{113}{119}Q$

C:-$\frac{111}{119}Q$

D:-$\frac{115}{119}Q$

Correct Answer:- Option-A

Question48:-The spin and parity assignments for the $^{17}_{8}O$ nucleus according to single particle shell model are

A:-$\left(\frac{3}{2}\right)^{-}$

B:-$\left(\frac{7}{2}\right)^{+}$

C:-$\left(\frac{5}{2}\right)^{+}$

D:-$\left(\frac{5}{2}\right)^{-}$

Correct Answer:- Option-C

Question49:-The reaction $^{2}_{1}H+^{2}_{1}H\rightarrow ^{4}_{2}He+\pi^{0}$ cannot proceed via strong interaction since it violates the conservation of

A:-Baryon number

B:-Lepton number

C:-Electric charge

D:-Isospin

Correct Answer:- Option-D

Question50:-If Aluminium (atomic weight = 26.98) has an FCC structure and the density is 2.7 x 10^3 kg/m^3, the unit cell dimensions is approximately

A:-12 A^0

B:-8.2 A^0

C:-4 A^0

D:-2.4 A^0

Correct Answer:- Option-C

Question51:-For a monovalent metal with BCC structure and lattice constant '*a*', the radius of the Fermi surface of free electron is

A:-$\left(\frac{\pi^2}{a^3}\right)^{\frac{1}{3}}$

B:-$\left(\frac{6\pi^2}{a^3}\right)^{\frac{1}{3}}$

C:-$\left(\frac{12\pi^2}{a^3}\right)^{\frac{1}{3}}$

D:-$\frac{1}{2\sqrt{a}}$

Correct Answer:- Option-B

Question52:-Which of the following phenomenon that cannot be used for memory storage application

A:-variation in resistance of a metal as a function of applied electric field

B:-variation in magnetization of a ferromagnet as a function of applied magnetic field

C:-Large variation in magnetoresistance as a function of applied magnetic field

D:-variation in polarization of a ferroelectric as a function of applied electric field

Correct Answer:- Option-A

Question53:-When a DC voltage V is applied across a Josephson junction between two superconductors with phase difference θ, and I_0 and *k* are constants that depend on the properties of the junction, the current flowing through the junction has the form

A:-$I_0 \sin(\frac{2eVt}{\hbar} + \theta)$

B:-$kV \sin(\frac{2eVt}{\hbar} + \theta)$

C:-$kV_0 \sin\theta$

D:-$I_0 \sin\theta + kV$

Correct Answer:- Option-A

Question54:-The Miller indices of a plane that makes intercepts on the crystallographic axes a = 3 A^0 , b = 4 A^0 and c = 3 A^0 in a tetragonal crystal with *c/a* ratio as 1.5 is

A:-(426)

B:-(214)

C:-(436)

D:-(131)

Correct Answer:- Option-C

Question55:-Suppose there are two crystalline solids, one with a simple cubic structure and the other having tetragonal structure and the effective spring constant between atoms in the *c*-direction is double the effective spring constant between atoms in the *a* and *b* directions. At low temperatures, the behaviour of the lattice contribution to the specific heat will depend as a function of temperature *T* as

A:-$T^{1/2}$ for both the solids

B:-T^3 for both the solids

C:-T for tetragonal solid and T^3 for simple cubic solid

D:-T^2 for tetragonal solid and T^3 for simple cubic solid

Correct Answer:- Option-B

Question56:-If the electrical conductivity of copper is approximately 95% of the electrical conductivity of silver, and the electron density in silver is approximately 60% of that of copper, the approximate ratio of mean collision time in copper τ_{cu} to the mean collision time in silver τ_{Ag} is

A:-0.55

B:-0.44

C:-0.77

D:-0.57

Correct Answer:- Option-D

Question57:-A glass optical fibre consisting of a cylindrical central core of refractive index n_1 is cladded by a material of slightly lower refractive index of n_2. If $n_1^2 < n_2^2 + 1$, then the angle which related the measure of the light gathering power of the fibre is given by

A:-$\sin^{-1}(n_1^2 - n_2^2)$

B:-$\sin^{-1}\left(\sqrt{(n_1^2 - n_2^2)}\right)$

C:-$\tan^{-1}(n_1^2 - n_2^2)$

D:-$\tan^{-1}\left(\sqrt{(n_1^2 - n_2^2)}\right)$

Correct Answer:- Option-B

Question58:-In a CO_2 laser, which of the following acts as the same role of Helium in He-Ne laser?

A:-CO_2

B:-N_2

C:-CO

D:-He

Correct Answer:- Option-B

Question59:-In a step index fibre for which refractive index, $n_1 = 1.51$, the angle of incidence for a ray is 30^0. The refractive index of the cladding material is _____

A:-1.308

B:-1.221

C:-0.982

D:-0.988

Correct Answer:- Option-A

Question60:-Consider a three-level system of atoms in which n_1 atoms are in level ε_1, n_2 atoms in level ε_2 and n_3 atoms in level ε_3. But $n_3 < n_1 < n_2$ and $\varepsilon_3 < \varepsilon_2 < \varepsilon_1$. Which of the following laser emissions is possible between the levels?

A:-ε_2 to ε_1

B:-ε_3 to ε_1

C:-ε_3 toε_2

D:-ε_2 to ε_3

Correct Answer:- Option-A

Question61:-The trajectory of light ray propagating in a step index fibre is

A:-Helical

B:-Sinusoidal

C:-Zig-zag

D:-Saw tooth

Correct Answer:- Option-C

Question62:-Which of the following is not correct?

A:-A hologram is essentially an interference pattern

B:-Holography requires coherent light

C:-Diffraction is used to decode a film in holography

D:-Holography requires only the phase information of the light waves

Correct Answer:- Option-D

Question63:-Consider the following two statements
(1) At thermal equilibrium, the rate of absorption must equal the rate of stimulated emission
(2) The Einstein coefficient of absorption is equal to the Einstein coefficient of stimulated emission
Which of the following is correct?

A:-only (1)

B:-only (2)

C:-both (1) and (2)

D:-None of them

Correct Answer:- Option-C

Question64:-The outer electron structure of the tin atom is $5s^2 5p^2$. Which of the following valence state of Mossbauer isotope ^{119}Sn has highest chemical shift in Mossbauer spectra?

A:-Sn (4-covalent)

B:-Sn^{2+}

C:-Sn^{3+}

D:-Sn^{4+}

Correct Answer:- Option-B

Question65:-Which of the following selection rule for a symmetric top molecule implies that the rotation of the molecule will be Raman inactive?

A:-$\Delta K=0$

B:-$\Delta J=0$

C:-$\Delta J=+1$

D:-$\Delta J=-1$

Correct Answer:- Option-A

Question66:-A nuclear magneton is defined in terms of the mass and charge of the _____

A:-Electron

B:-Neutrino

C:-Proton

D:-Positron

Correct Answer:- Option-C

Question67:-If all vibrations cause a change in the electric dipole moment of a molecule, it yields _____

A:-Infrared spectra

B:-UV SPECTRA

C:-X-ray spectra

D:-Raman spectra

Correct Answer:- Option-A

Question68:-For the state $^2P_{3/2}$, the value of Lande's splitting factor, g is _____

A:-0

B:-1/3

C:-2/3

D:-4/3

Correct Answer:- Option-D

Question69:-The molecule C_2H_2 is _____

A:-Infrared active and microwave active

B:-Infrared active and microwave inactive

C:-Infrared inactive and microwave active

D:-Infrared inactive and microwave inactive

Correct Answer:- Option-B

Question70:-If N is the number of atoms in a molecule, then a linear molecule has _____ modes of vibrations

A:-3N-6

B:-3N-2

C:-3N-5

D:-3N-1

Correct Answer:- Option-C

Question71:-Identify the most flexible instructional and assessment tool adaptable to diverse curricula student age and administrative context

A:-Evaluation

B:-Self-assessment

C:-Portfolio

D:-Absolute Grading

Correct Answer:- Option-B

Question72:-What is the primary goal of using case studies in teaching social Science?

A:-To provide historical facts

B:-To Promote rote learning

C:-To develop critical thinking and problem-solving skills.

D:- To focus on development aspects

Correct Answer:- Option-C

Question73:-A teacher wants to evaluate student's understanding of the concept of democracy in a social science classroom. Which one is the appropriate assessment strategy for evaluating their ability to apply this concept to real life situation

A:-Essay on the history of democracy

B:-Multiple choice questions on the definition of democracy

C:-Group discussion on the role of citizens in a democratic society

D:-Project on designing a democratic system for a moc village

Correct Answer:- Option-D

Question74:-What is the primary goal of ethnographic research?

A:-To generalize findings to a wider population

B:-To describe events with in a specific group

C:-To test a Hypothesis

D:-To collect quantitative data

Correct Answer:- Option-B

Question75:-Select the main advantage of using stratified sampling

A:-It makes the sample more representative of the population

B:-It reduces sample size

C:-It eliminates sampling error completely

D:-It simplifies data analysis

Correct Answer:- Option-A

Question76:-Which statement best describes the teacher’s role in the Problem-Solving Method?

A:-A teacher solves all problems for students

B:-The teacher guides and facilitates student-led problem solving

C:-The teacher remains uninvolved

D:-The teacher assigns only textbook exercises

Correct Answer:- Option-B

Question77:-Which experience is considered the best type of educative experience?

A:- Vicarious

B:-Virtual experience

C:-Direct Experience

D:-Theoretical experience

Correct Answer:- Option-C

Question78:-Action Research is Primarily used in

A:-Experimental laboratory studies

B:-Real situation to solve practical problems

C:-Theoretical simulation

D:-Contrived academic exercises

Correct Answer:- Option-B

Question79:-In field research. ‘participant observation‘ means

A:-Observing without interacting

B:-Conducting telephone surveys

C:-Observing while taking part in the activity

D:-Mass observation

Correct Answer:- Option-C

Question80:-Which of the following is a teacher related factor affecting teaching?

A:-Classroom environment

B:-Student’s home environment

C:-School infrastructure

D:-Teacher’s Subject knowledge

Correct Answer:- Option-D

Question81:-Which of the following features of the Indian Constitution reflects the influence of the Government of India Act, 1935?

1. Bicameral legislature
2. The Office of the Governor
3. Federal structure with a strong centre
4. Judicial review

A:-1 only

B:-1, 2 and 4 only

C:-1, 2 & 3 only

D:-All of the above

Correct Answer:- Option-C

Question82:-Which Constitutional Amendment Act allows the same person to be appointed as Governor for two or more states, as well as establish a common High Court for two or more states?

A:-7th Constitutional Amendment Act of 1956

B:-11th Constitutional Amendment Act of 1961

C:-42nd Constitutional Amendment Act of 1976

D:-70th Constitutional Amendment Act of 1991

Correct Answer:- Option-A

Question83:-The Rights of Persons with Disabilities Act, 2016, recognises how many categories of disabilities?

A:-7

B:-14

C:-21

D:-19

Correct Answer:- Option-C

Question84:-Match the following:

a. Doctrine of Severability	1. Laws inconsistent with Fundamental Rights become inactive until amendment
b. Doctrine of Colourable Legislation	2. Only the aggrieved person can approach the court
c. Doctrine of Eclipse	3. Partial invalidity of laws inconsistent with Fundamental Rights
d. Doctrine of Locus Standi	4. What cannot be done directly cannot be done indirectly

A:-a-2, b-1, c-3, d-4

B:-a-3. b-4, c-1, d-2

C:-a-1, b-4, c-3, d-2

D:-a-1, b-2, c-3, d-4

Correct Answer:- Option-B

Question85:-Under the Wildlife (Protection) Act, 1972, which authority primarily has the power to declare any area a sanctuary?

A:-Central Government

B:-State Government

C:-Indian Parliament

D:-National Board for Wildlife

Correct Answer:- Option-B

Question86:-Which among the following statements is incorrect?

1. Certiorari refers to a writ by which a higher court reviews a lower court's decision
2. In the 2017 K.S. Puttaswamy case, Supreme Court of India upheld the right to privacy as a fundamental right
3. Under Indian Constitution, freedom of speech and expression is a fundamental right guaranteed to both citizens and non-citizens in India
4. Article 39(b) of Indian Constitution refers to ownership and control of material resources of the community

A:-1 and 2 only

B:-3 and 4 only

C:-1 only

D:-3 only

Correct Answer:- Option-D

Question87:-Match the following

a. Article 280	1. Comptroller and Auditor General of India
b. Article 324	2. Public Service Commissions
c. Article 320	3. Election Commission of India
d. Article 148	4. Finance Commission

A:-a-4, b-3, c-2, d-1

B:-a-2, b-4, c-1, d-3

C:-a-3, b-4, c-2, d-1

D:-a-1, b-2, c-3, d-4

Correct Answer:- Option-A

Question88:-Identify the incorrect statement among the following

A:-Janani Suraksha Yojana (JSY) primarily aims to promote institutional deliveries

B:-Pradhan Mantri Matru Vandana Yojana (PMMVY) provides maternity benefits for the first two live births, provided the second child is a girl

C:-Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) was previously known as the Indira Gandhi Matritva Sahyog Yojana

D:-Surakshit Matritva Aashwasan (SUMAN) Yojana provides free healthcare services to pregnant women and newborns

Correct Answer:- Option-C

Question89:-Article 131 of the Constitution of India refers to:

A:-Jurisdiction of the Supreme Court of India over inter-state disputes

B:-President of India can establish Inter-State Councils

C:-President's power to promulgate ordinances during the recess of Parliament

D:-Allow Supreme Court to review its own judgments or orders

Correct Answer:- Option-A

Question90:-Match the following schemes and beneficiaries:

a. Stand-Up India scheme	1. Micro and Small Enterprises
b. Deendayal Antyodaya Yojana	2. Street vendors
c. Pradhan Mantri Mudra Yojana	3. SC/ST and Women entrepreneurs
d. PM SVANidhi Scheme	4. Urban poor

A:-a-1, b-3, c-2, d-4

B:-a-3, b-4, c-2, d-1

C:-a-4, b-3, c-1, d-2

D:-a-3, b-4, c-1, d-2

Correct Answer:- Option-D

Question91:-Which one of the statements is true with reference to *Nizhalthankals* founded by Vaikunda Swamikal

(i) An institution to feed the poor and the hungry
(ii) An institution for the cause of Dharma Paripalanam
(iii) An institution for worship

A:-Only (i)

B:-Only (iii)

C:-Only (ii & iii)

D:-All of the above

Correct Answer:- Option-D

Question92:-*Sadhujan Dootan* a magazine,which criticized the evils of caste system was started by

A:-Ayyankali

B:-Poikayil Yohannan

C:-Pampadi John Joseph

D:-K P Vallon

Correct Answer:- Option-C

Question93:-“To walk through the public road is one that even dogs and pigs enjoy everywhere without having to offer any satyagraha at all” Name the person who made this statement

A:-T K Madhavan

B:-Kumaran Asan

C:- Dr. Palpu

D:-Ayyankali

Correct Answer:- Option-C

Question94:-The author of Atmohuti, a work that attacked the dowry system among Nambutiris was

A:-V.T Bhattathiripad

B:-M.P Bhattathiripad

C:-Balamani Amma

D:-M.B.Nambutiripad

Correct Answer:- Option-D

Question95:-The Missionary Society that started the Fort Girls’ Mission School In 1864 in Trivandrum

A:-CEZMS

B:-LMS

C:-CMS

D:-BEMS

Correct Answer:- Option-A

Question96:-The Newspaper that published for the first time Asan's *Veena Poovu*

A:-Vivekodayam

B:-Mithavadi

C:-Mathrubhumi

D:- Bhashaposhini

Correct Answer:- Option-B

Question97:-
Which of the following statements are true regarding Vaikom satyagraha

(i) It was part of the movement for civic rights for freedom to walk through roads surrounding temples
(ii) It was a movement launched for entry to Mahadeva temple at Vaikom
(iii) It was an anti — untouchability movement supported by Gandhiji
(iv) It was led by T K Madhavan

A:-Only (i)

B:-Only (ii)

C:-Only (i, iii & iv)

D:-Only (ii, iii & iv)

Correct Answer:- Option-C

Question98:-The first woman advocate of Tiruvitamkur was

A:-Accamma Cherian

B:-Anna Chandi

C:-Ammu Swaminathan

D:-Mary Poonen Lukose

Correct Answer:- Option-B

Question99:-*Sahitya Manjari* was the work of

A:-P. Kunhiraman Nair

B:-G. Sankara Kurup

C:-Changampuzha Krishna Pillai

D:-Vallathol Narayana Menon

Correct Answer:- Option-D

Question100:-Name the personality who suggested the name Manorama for the Malayala Manorama paper

A:-Mar Devanious

B:-Sreemoolam Thirunal

C:-Kerala Varma Valiya Koyi Thampuran

D:-Kandathil Varghese Mappilla

Correct Answer:- Option-C