GUJCET 2023 Question Paper

Gujarat Common Entrance Exam (GUJCET)

GUJCET-PCE-2023

Test Booklet No. 0900809 **Test Booklet Set No.** 09

This booklet contains 32 pages.

DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :

1) The Physics and Chemistry test consists of 80 questions. Each question carries 1 mark. For each correct response, the candidate will get 1 mark. For each incorrect response ¼ mark will be deducted. The maximum marks are 80.
2) This Test is of **2 hours** duration.
3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6) The Set No. for this Booklet is 09. Make sure that the Set No. printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9) Use of White fluid for correction is not permissible on the Answer Sheet.
10) Each candidate must show on demand his / her Admission Card to the Invigilator.
11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12) Use of Simple (Manual) Calculator is permissible.
13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) will be deemed not to have handed over the Answer Sheet and will be dealt with as an unfair means case.
14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16) The candidates will write the Correct Test Booklet Set No. as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

PHYSICS

1) Two slits are made 10 millimeter apart and the screen is placed 1.5 metre away. What is the fringe separation when a wavelength of 7000 Å is used?

(A) 105 μm
(B) 1.05 μm
(C) 10.5 μm
(D) 0.105 μm

2) What is the de Broglie wavelength associated with an electron accelerated through a potential difference of 64 volts?

(A) 1.43 Å
(B) 1.23 Å
(C) 1.53 Å
(D) 1.33 Å

3) An electron, an α-particle and a proton have the same kinetic energy. Which of these have longest de Broglie wavelength?

(A) α-particle
(B) proton
(C) electron
(D) both α-particle and proton

(Space for Rough Work)

$x = \frac{\lambda D}{d} = \frac{7000 \times 10^{-10} \times 1.5}{16 \times 10^{-3}}$

$= 7 \times 1.5 \times 10^{-5}$

$= 10.5 \times 10^{-5}$

$= 105 \times 10^{-6}$ m

$\lambda = \frac{h}{\sqrt{2mK}}$

$e \rightarrow m$

$p \rightarrow m$

$\rightarrow 4m$

$\lambda_\alpha = \frac{h}{2\sqrt{2mK}}$

$\lambda = \frac{1.227}{\sqrt{64}}$

$= 1.23$

$= 0.153 \times 10^{-9}$ m

$= 1.53 \times 10^{-10}$

4) The number of photons emitted per second by a bulb of 66 W power emitting waves of wavelength 600 nm is _____. ($h = 6.6 \times 10^{-34}$ J.s)

(A) 2×10^{22} (B) 2×10^{19}

(C) 2×10^{21} (D) 2×10^{20}

5) The longest wavelength present in the Balmer series of spectral line is _____.

(A) 5438 Å (B) 6563 Å

(C) 7369 Å (D) 3646 Å

6) In hydrogen atom an electron makes a transition from 5^{th} orbit to 3^{rd} orbit. The change in the angular momentum for this electron is _____.

(A) $\frac{h}{\pi}$ (B) $\frac{h}{2\pi}$

(C) $\frac{3h}{\pi}$ (D) $\frac{5h}{\pi}$

7) A radioactive isotope has a halflife of 2.5 years. How long will it take the activity to reduce to 1.5625%?

(A) 10 years (B) 5 years

(C) 15 years (D) 20 years

(Space for Rough Work)

$\frac{5h}{2\pi} - \frac{3h}{2\pi} \quad \frac{2h}{2\pi}$

$5 \to 2$

$Ba \to 2$

Pa

$\frac{1}{\lambda} = R\left[\frac{1}{2^2} - \frac{1}{3^2}\right]$

$\lambda = \frac{4 \times 9}{5R} = \frac{36}{5 \times 9}$

$U = \frac{Kq_1q_2}{r}$

$= \frac{1}{4\pi\varepsilon_0} \frac{e^2 Z}{e^2 Z^2} \frac{n^2 h^2}{4\pi^2 m r^2}$

$\frac{e^2 Z^2 \pi m}{h^2} = \frac{Ke^2 Z}{m\left(\frac{nh}{2\pi mr}\right)^2}$

$\frac{mv^2}{r} = \frac{K(e^2)Z}{r^2}$

$r = \frac{Ke^2 Z}{mv}$

$mvr = \frac{nh}{2\pi}$

$v = \frac{nh}{2\pi mr}$

$U = \frac{1}{}$

$r = \frac{e^2 Z^2 \pi m r^2}{\varepsilon_0 n^2 h^2}$

$\frac{\varepsilon_0 n^2 h^2}{e^2 Z^2 \pi m}$

UDC73(09) $= \frac{1}{4\pi\varepsilon_0} \frac{e^2 Z}{\left(\frac{n^2 h^2}{4\pi^2 m^2 r^2}\right)}$

[4]

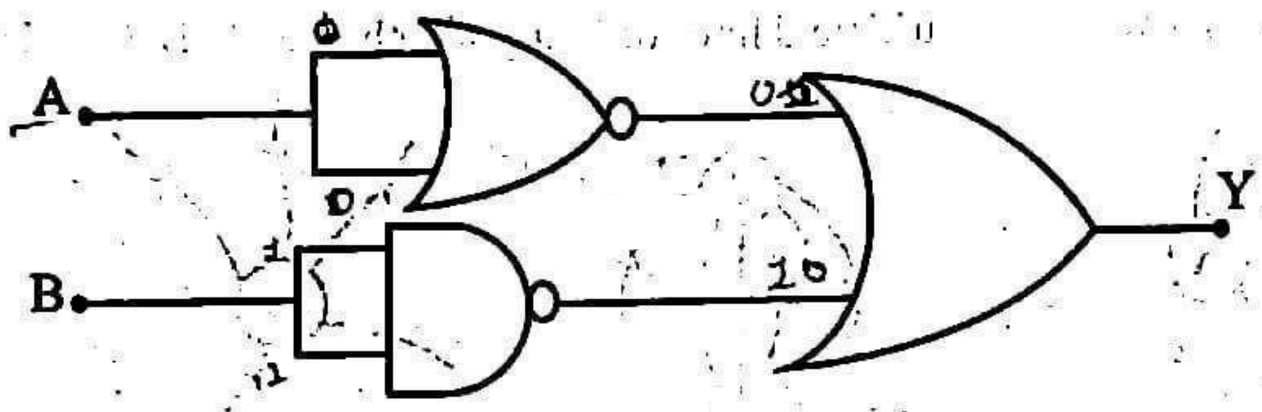
8) In proton-proton cycle in Sun the energy released when an electron & its antiparticle combines is _____.

(A) 1.021×10^{-13} J
(B) 0.672×10^{-13} J
(C) 1.126×10^{-13} J
(D) 1.632×10^{-13} J

9) The ratio of halflife and average life for a radioactive sample is _____.

(A) 2.303
(B) log (2)
(C) ln(2)
(D) e^2

10) The given logic circuit behaves as _____ gate.



(A) NAND
(B) NOR
(C) NOT
(D) OR

11) In p-n junction solar cell, the ratio of thickness of p-Si wafer and n-Si layer is approximately _____.

(A) 300
(B) 1000
(C) 30
(D) 0.3

(Space for Rough Work)

$\frac{36}{5 \times 6563} = R \quad \tau = \frac{1}{\lambda} = \frac{T_{1/2}}{0.693}$

$0.000977 \times 10^{-10} \quad 0.693 = \frac{T_{1/2}}{\tau}$

9.77×10^{6}

$\lambda = \frac{0.693}{4.25}$

$\ln \frac{R_0}{R} =$

$2.303 \log \frac{1.5625}{100} = -\lambda t$

A	B	Y	$\bar{Y}$
1	1	0	1
0	1	1	0
1	0	1	0
0	0	1	0

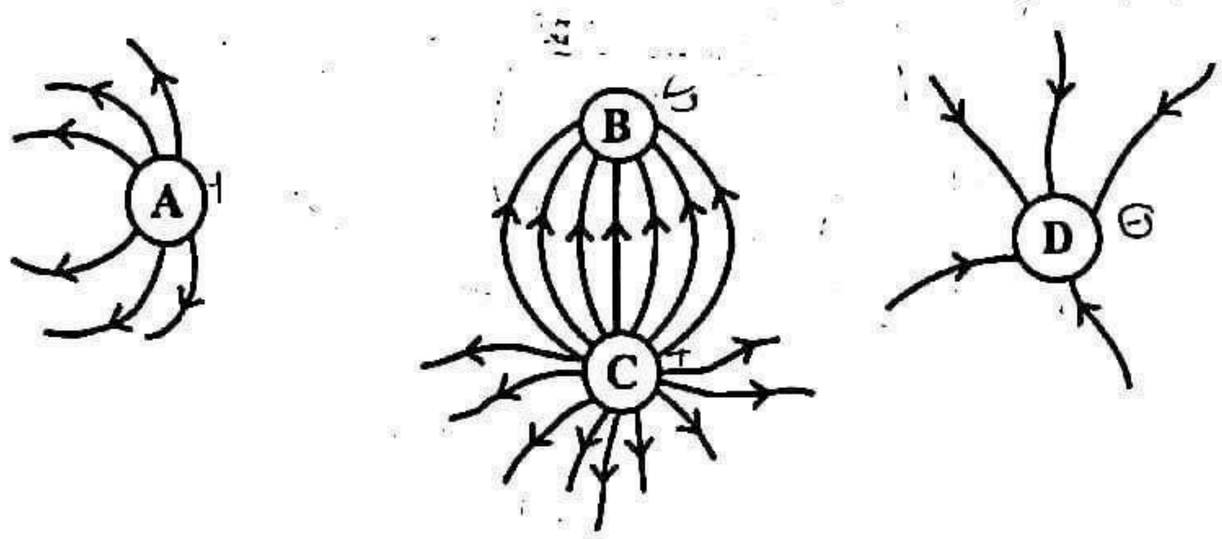
12) The minimum band gap (E_g) of semiconductors used for fabrication of visible LED is _____ eV.

(A) 1.8
(B) 1.4
(C) 2.3
(D) 3.0

13) Consider a uniform electric field $\vec{E} = 3\times10^3 \hat{k}$ N/C. The electric flux of this field through a square of 20 cm on a side whose plane is parallel to yz plane is _____ Nm^2/C.

(A) 90
(B) 120
(C) 60
(D) Zero

14) Figure shows the electric field lines of four point charges A, B, C and D.



Which charge has the maximum magnitude?

(A) C charge
(B) B charge
(C) A charge
(D) D charge

(Space for Rough Work)

$A = 20\ L^2 = 20\times20\times10^{-4} = 4\times10^{-2}$

$\phi = EA\cos\theta$

$= 3\times10^3 \times 4\times10^{-2}$

$= 120$

15) A polythene piece rubbed with wool is found to have a negative charge of 3.52×10^{-7} C. What is the number of electrons transferred?

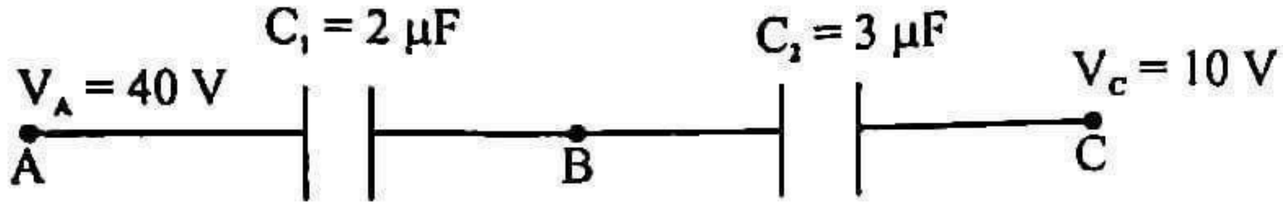
(A) 1.1×10^{12}

(B) 2.2×10^{12}

(C) 4.4×10^{12}

(D) 5.5×10^{12}

16) The potential at the point B in the given figure is _____V.



(A) 30

(B) 50

(C) 22

(D) 25

17) A charge Q is placed at the centre of circle of radius 10 cm. Find the work done in moving a charge q between any two points lying on the arc of this circle.

(A) KQq J

(B) 0.1 KQq J

(C) 0.5 KQq J

(D) 0 J

18) The dielectric strength of air is _____.

(A) 3×10^9 V/cm

(B) 3×10^9 V/mm

(C) 3×10^9 V/μm

(D) 3×10^9 V/m

(Space for Rough Work)

$Q = ne$

$\frac{3.52\times10^{-7}}{1.6\times10^{-19}} = n$

$\times10^{12}$

$2\pi r =$

$V_A = \frac{2\times Q\mu F}{}$ +

$W = \frac{KQq_1}{2}$

$= \frac{K(Q_1)(q)}{10\times10^{-2}}$

$= \frac{KQq}{10^{-1}}$

19) Unit of mobility in terms of fundamental units is _____.

(A) $kg^{-1}s^{-2}A$ (B) kgs^2A

(C) $kg^{-1}s^2A$ (D) $kg^{-1}s^2A^{-1}$

20) A metal rod of length 10 cm and a rectangular cross-section of $1cm \times \frac{1}{2}cm$ is connected to a battery across opposite faces. The resistance will be _____.

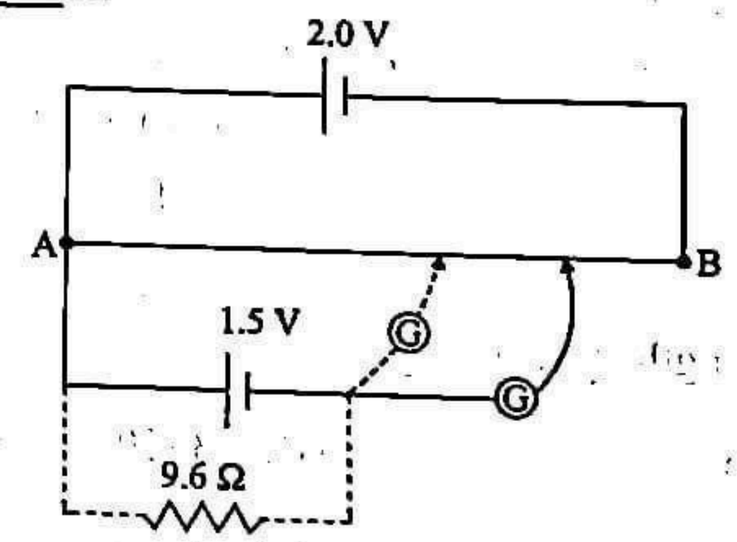
(A) Maximum when the battery is connected across 10 cm × 1 cm

(B) Maximum when battery is connected across $1cm \times \frac{1}{2}cm$ faces

(C) Maximum when the battery is connected across $10cm \times \frac{1}{2}cm$

(D) Same irrespective of three faces

21) Figure shows 2.0 V potentiometer used for the determination of internal resistance of 1.5 V cell. The balance point of cell in open circuit is 77.4 cm. When a resistor of 9.6 Ω is used in the external circuit of the cell, the balanced point shifts to 64.5 cm length of the potentiometer wire. The internal resistance of the cell is _____Ω.



(A) 1.92 (B) 1.5

(C) 1.62 (D) 0.96

(Space for Rough Work)

$$\frac{Vd}{E} = \frac{m}{s^2}\cdot\frac{C}{N} = \frac{m}{s^2}\cdot\frac{s^2\cdot A}{Kg\,m}$$

$\therefore$ $V = Ed$ $F = qE$

$= s^2 \cdot A$

Kg^{-1}

22) An electron is projected with uniform velocity along the axis of current carrying long solenoid. Which of the following is true?

(A) The electron path will be circular about the axis

(B) The electron will be accelerated along the axis

(C) The electron will experience a force at 45° to the axis and hence execute a helical path

(D) The electron will continue to move with uniform velocity along the axis of the solenoid

23) An electron is moving at a speed of 3.2×10^7 m/s in a magnetic field of 12×10^{-4} T perpendicular to the direction of motion of electron. The radius of the path of the electron is _____ cm. ($e = 1.6 \times 10^{-19}$ C and $m_e = 9 \times 10^{-31}$ kg)

(A) 30 (B) 13

(C) 15 (D) 26

24) A solenoid of length 0.5 m has a radius of 1 cm and is made up of 250 turns. It carries a current of 5 A. What is the magnitude of the magnetic field inside the solenoid?

(A) 3.14×10^{-3} T (B) 6.28×10^{-3} T

(C) 62.8×10^{-3} T (D) Zero

(Space for Rough Work)

$B = n\mu_0 I$

$= \mu_0 \frac{N}{L} I$

$= 4\pi \times 10^{-7} \times \frac{250}{0.5} \times 5$

$= \frac{4 \times 3.14 \times 10^{-7} \times 250 \times 10}{5}$

$= 3140 \times 10^{-6}$

$= 3.14 \times 10^{-3}$

$R = \frac{qB}{2\pi n}$ $\quad 1.5 \times 10^{-1}$ $\quad 15 \times 10^{-2}$

$\lambda = \frac{mv}{qB}$

$= \frac{9 \times 10^{-31}}{1.6 \times 10^{-19}} \times \frac{3.2 \times 10^{7}}{12 \times 10^{-4}}$

=

25) The galvanometer has a resistance of 18 Ω. Calculate the value of shunt to increase the range of galvanometer by 10 times.

(A) 4 Ω
(B) 1 Ω
(C) 3 Ω
(D) 2 Ω

26) A bar magnet having pole strength q_m and magnetic moment m is divided into two equal parts along its length. The new pole strength is _____ and the magnetic moment is _____ respectively.

(A) $q_m, \frac{m}{2}$
(B) $\frac{q_m}{2}, m$
(C) $\frac{q_m}{2}, \frac{m}{2}$
(D) q_m, m

27) A solenoid has a core of a material with relative permeability 400. The windings of solenoid are insulated from the core and carry a current of 2 A. If the number of turns is 1000 per metre, the magnetic field B inside the solenoid is _____T.

(A) 1.5
(B) 1.0
(C) 1.8
(D) 2.0

28) The dimensional formula of self inductance is _____.

(A) $M^1L^1T^{-2}A^{-2}$
(B) $M^1L^2T^{-2}A^{-2}$
(C) $M^{-1}L^{-1}T^2A^2$
(D) $M^1L^{-1}T^{-1}A^{-2}$

(Space for Rough Work)

$\mu = \mu_0\mu_r$

$B = \mu_0\mu_r \times 1000 \times 2$

$= 4\pi \times 10^{-7} \times 400 \times 1000 \times 2$

$= \mu_0 NI$

$= 100$

$\varepsilon = -L\frac{d\phi}{dt}$

10^{-2}

$\frac{\varepsilon \times t}{\phi}$

$\frac{V \times S}{B:A}$

$\frac{V \times S}{}$

$\frac{W}{q} \times \frac{t}{}$

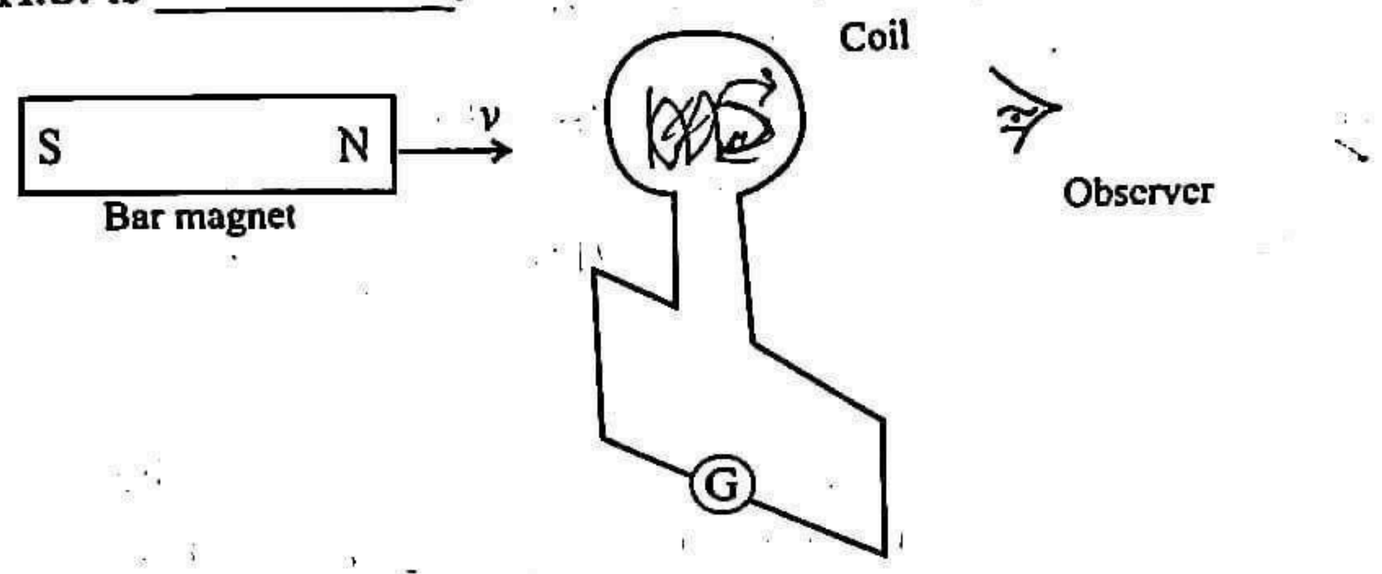
$m = q_m \cdot l$

$q_m = \frac{m}{2} \cdot l$

$R = \frac{I_G R_G}{I - I_G}$

$= \frac{I_G \times 18}{9 I_G} = \frac{18}{9}$

29) As shown in the figure a bar magnet is moving towards a stationary coil with constant speed v. The direction of induced current in the coil observed by the observer on R.H.S. is _____.



(A) Anticlockwise

(B) Clockwise

(C) Current changes its direction randomly

(D) Induced current will not be produced

30) A circular coil of area 2 cm^2 is placed in a magnetic field of 3T perpendicularly. The coil has 10 turns and 5 Ω resistance. Now the coil is removed from magnetic field in 0.2 s. The value of induced charge flowing through the coil is _____.

(A) 1.1 mC

(B) 1.9 mC

(C) 1.2 mC

(D) Zero

(Space for Rough Work)

$10-21$
$M^1L^0T^{-2}A^{-1}$
$2=\pi r$
$\frac{2}{\pi}=r^2$
$\frac{2\times10^{-4}}{3.4}$
$A=2cm^2$
$B=3T$
$N=10$ turns
$R=5\Omega$
$0.64\times10^{-4}t=0.2$
$0.8\times10^{-2}=r$
$B=\frac{\mu_0 NI}{2\pi r}$
$\varepsilon=BVl$
$\frac{B\cdot l\cdot r\cdot t}{\mu_0 N}=1$ b
$\frac{3\times2\times0.8\times10^{-2}\times0.2}{4\times3.14\times10^{-7}\times10}$
$\frac{3\times7\times3.14\times0.4\times10^{-2}}{4\pi\times10^{-7}\times10}$
0
$3\times0.4\times10^{-4}\times0.2$
1.2×10^{-4}

31) A pure inductor of 25.48 mH and a pure resistor of 8Ω are connected in series with an A.C. source of frequency 50 Hz. The phase difference between current (I) and voltage (V) in this circuit is _____.

(A) 45°
(B) 30°
(C) 60°
(D) 90°

32) The charge of the capacitor in L-C oscillatory circuit, when the energy associated with inductor and capacitor are equal, is _____. [Q_0 is the initial charge on the capacitor].

(A) $\frac{Q_0}{2}$
(B) Q_0
(C) $\frac{Q_0}{\sqrt{3}}$
(D) $\frac{Q_0}{\sqrt{2}}$

33) The output of a stepdown transformer is measured to be 24V when connected to a 12 watt light bulb. The value of peak current (I_m) is _____ A.

(A) 1.41
(B) 0.71
(C) 2
(D) 2.83

(Space for Rough Work)

$\tan\left(\frac{X_L}{R}\right) = \frac{\omega L}{R} = \left(\frac{2\pi r \times 25.46 \times 10^{-3}}{8}\right)$.

$= \frac{2 \times 3.14 \times 50 \times 25.46 \times 10^{-3}}{8}$

$= 1500 \times 10^{-3}$

$P = I_{rms}^2 R$

$P = I^2_{rms} \frac{V}{I}$

$= IV.$

$\frac{P}{V} = \frac{12}{24\sqrt{2}} = I_{rms} = 1.5$

$\frac{\sqrt{2}}{2} \cdot 2 = I_m$ $\quad \frac{15}{10} = \frac{3}{2}$

34) If $\vec{E}$ and $\vec{B}$ represent electric and magnetic field vectors of electromagnetic wave, the direction of propagation of electromagnetic wave is along

(A) $\vec{B}$ (B) $\vec{E}$

(C) $\vec{B} \times \vec{E}$ (D) $\vec{E} \times \vec{B}$

35) Frequency range of visible light is _____.

(A) 400 THz to 700 THz (B) 400 GHz to 700 GHz

(C) 400 MHz to 700 MHz (D) 400 kHz to 700 kHz

36) The refractive index of air with respect to vacuum is _____.

(A) 1.0029 (B) 1

(C) 1.00029 (D) 1.029

37) A lens of power – 4.0 Diopter. It means _____.

(A) Concave lens of focal length –25.0 cm

(B) Concave lens of focal length – 0.25 cm

(C) Convex lens of focal length +0.25 cm

(D) Convex lens of focal length +25.0 cm

(Space for Rough Work)

$n = \frac{c}{v}$

38) The earth takes 24 h to rotate once about its axis. How much time does the Sun takes to shift by 1 minute viewed from the earth.

(A) 4 minutes

(B) 40 s

(C) 4 s

(D) 40 minutes

39) For what distance a ray optics a good approximation when the aperture is 6 mm wide and the wavelength is 6000 Å ?

(A) 50 m

(B) 60 m

(C) 40 m

(D) 10 m

40) Monochromatic light of wavelength 480 nm is incident from air to glass surface. Refractive index of glass is 1.5. The ratio of the frequency of the incident and refracted light is _____.

(A) 2 : 1

(B) 1 : 2

(C) 4 : 1

(D) 1 : 1

(Space for Rough Work)

$z = \frac{a^2}{\lambda}$

$= \frac{6 \times 6 \times 10^{-6}}{6 \times 10^{-7}}$

$= 36 \times 10$

$= 6 \times 6$

$= 60\ m$

$24 \times 60 \rightarrow 360$

$1 \leftarrow 1$

$\frac{24 \times 3600}{360}$

240 s

$\frac{240}{60}$

$\frac{c}{\lambda}$

$\frac{n\nu}{\lambda}$

$\frac{n\nu}{\frac{n\nu}{\lambda}}$

$\frac{10}{10} : \frac{15}{10}$

2 : 3

CHEMISTRY

41) Which one is the common name of the compound $CH_2 = CH - CHO$?

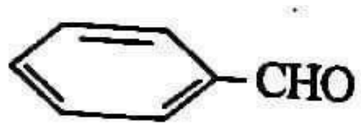
(A) Mesityl Oxide
(B) Prop-2-Enal
(C) Acrolein
(D) Propanal-1-ene

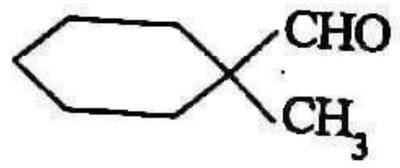
42) What is the correct order of acidity of compound (I), (II) and (III)?

I) 4-Nitrobenzoic acid
II) 4-Methoxy Benzoic acid
III) Benzoic acid

(A) I > III > II
(B) I > II > III
(C) I < II < III
(D) I < III < II

43) Which of the following compound does not give cannizzaro reaction?

(A) 

(B) 

(C) HCHO
(D) CH_3CHO

(Space for Rough Work)

44) Which compound will give Hoffmann bromamide degradation reaction?

(A) $Ar-CONH_2$ (B) $Ar-NH_2$

(C) $Ar-NO_2$ (D) $Ar-CH_2NH_2$

45) Benzene diazonium chloride reacts with phenol in basic medium to give product. How many σ (sigma) and π (pi) bonds are present in that product?

(A) 16 - σ and 7 - π (B) 16 - σ and 6 - π

(C) 26 - σ and 7 - π (D) 26 - σ and 6 - π

46) Methylamine reacts with HNO_2 to form?

(A) $CH_3-O-N=O$ (B) CH_3-OH

(C) CH_3-O-CH_3 (D) CH_3-CHO

47) Which statement is not correct for Glucose?

(A) When heated with HI it gives n-Hexane

(B) It is aldohexose

(C) It react with Hydroxyl amine

(D) It contain furanose structure

(Space for Rough Work)

48) Which base is not present in the DNA structure?

(A) Uracil (B) Adenine

(C) Guanine (D) Cytosine

49) What are two monomers of Glyptal polymer?

(A) Ethylene Glycol and Isophthalic acid

(B) Ethane - 1, 2-Diol and Phthalic acid

(C) Ethylene Glycol and Terephthalic acid

(D) Formaldehyde and Ethylene Glycol

50) Which polymer is used in making non-stick surface coated Utensils?

(A) PHBV (B) Nylon 6,6

(C) Teflon (D) Buna - N

51) Which artificial sweetening agent is limited in for cold food and soft drinks?

(A) Sucralose (B) Alitame

(C) Saccharin (D) Aspartame

(Space for Rough Work)

52) Polyethylene-glycol is used in the preparation of which types of detergent?

(A) Anionic detergent

(B) Non Ionic detergent

(C) Cationic detergent

(D) Soap

53) The correct order of the packing efficiency in different types of unit cell is _____.

(A) fcc > bcc > simple cubic

(B) fcc < bcc < simple cubic

(C) fcc < bcc > simple cubic

(D) fcc = bcc > simple cubic

54) Which of the following defect obtained by heating of zinc-oxide?

(A) Impurity defect

(B) Metal deficiency defect

(C) Stoichiometric defect

(D) Metal excess defect

(Space for Rough Work)

55) Which of the following aqueous solution has highest boiling point?

(A) 0.1 M KNO_3 (B) 0.1 M urea

(C) 0.1 M $K_4[Fe(CN)_6]$ (D) 0.1 M NH_4NO_3

56) We have three aqueous solutions of CH_3COONa labelled as A, B and C with concentration 0.1 M; 0.01 M and 0.001 M respectively. The value of Van't Hoff factor (i) for these solutions will be in order _____.

(A) $i_A > i_B > i_C$ (B) $i_A < i_B < i_C$

(C) $i_A = i_B = i_C$ (D) $i_A < i_B > i_C$

57) What is the osmotic pressure (π) of 0.02 M solution of NaCl?

(A) 0.01 RT (B) 0.02 RT

(C) 0.04 RT (D) 0.002 RT

58) Resistance of a conductivity cell filled with 0.1 M KCl solution is 100 Ω and conductivity of solution is 1.29 s/m. Then what will be the value of conductivity cell constant.

(A) 1.29 cm^{-1} (B) 1.29 m^{-1}

(C) 1.24 cm^{-1} (D) 0.248 m^{-1}

(Space for Rough Work)

$K = G^* \cdot C$

$K = G^* \cdot \frac{l}{R}$

1.29×100

$129\ m^{-1}$

$1\ \frac{1}{m}$

$1 \rightarrow 100$

$129 \rightarrow ?$

0.1 $\rightarrow$ 0

α 0.1$-\alpha$ α α

59) Which of the following is correct Nearst equation for the given electrochemical cell?

$$Mg_{(s)}\left|Mg^{2+}_{(aq)}(0.1M)\right\|Cl^{-}_{(aq)}(0.1M)\left|Cl_{2(g)}(1bar)\right|Pt_{(s)}$$

(A) $E_{cell}=E^{o}_{cell}-\frac{0.059}{2}\log\frac{\left[Cl^{-}\right]^{2}}{\left[Mg^{2+}\right]}$

(B) $E_{cell}=E^{o}_{cell}-\frac{0.059}{2}\log\frac{\left[Mg^{2+}\right]}{\left[Cl^{-}\right]^{2}}$

(C) $E_{cell}=E^{o}_{cell}-\frac{0.059}{2}\log\frac{1}{\left[Mg^{2+}\right]\left[Cl^{-}\right]^{2}}$

(D) $E_{cell}=E^{o}_{cell}-\frac{0.059}{2}\log\left[Mg^{2+}\right]\left[Cl^{-}\right]^{2}$

(Space for Rough Work)

$Mg \longrightarrow Mg^{2+} + 2e^{-}$

$2Cl_2 + 2e^{-} \longrightarrow 2Cl^{-}$

60) Which of the following chemical reaction occur at anode during electrolysis of higher concentrated H_2SO_4 solution?

(A) $2SO_{4(aq)}^{2-} \rightarrow S_2O_{8(aq)}^{2-} + 2e^-$

(B) $2H_2O_{(l)} \rightarrow O_{2(g)} + 4H_{(aq)}^{+} + 4e^-$

(C) $H_2O_{(l)} + e^- \rightarrow \frac{1}{2}H_{2(g)} + 2OH_{(aq)}^-$

(D) $S_2O_{8(aq)}^{2-} + 2e^- \rightarrow 2SO_{4(aq)}^{2-}$

61) For which of the following graph of first order reaction the value of slope will be $K/2.303$?

(A) $\log [R]_0/[R] \rightarrow t(\text{Time})$

(B) $\log [R]/[R]_0 \rightarrow t(\text{Time})$

(C) $\ln [R]_0/[R] \rightarrow t(\text{Time})$

(D) $\ln [R]/[R]_0 \rightarrow t(\text{Time})$

(Space for Rough Work)

$\ln[R] = Kt + C$

$\ln[R] = Kt + \ln[R_0]$

$\ln \frac{[R]}{[R_0]} = Kt$

2.

62) Which will be the unit of rate constant for the reaction having Rate = $K[A]^{1/2}.[B]^{3/2}$?

(A) $Second^{-1}$

(B) $Mol/lit.Sec^{-1}$

(C) $Mol^{-1}.lit.Sec^{-1}$

(D) $(Mol/lit)^2.Sec^{-1}$

63) A reaction is first order in terms of A and second order in terms of B. What will be the rate of reaction, if concentration of B is increased two times?

(A) 4-Times

(B) 2-Times

(C) 8-Times

(D) 16-Times

$[R] = K[A][2B]^2$

64) Which of the following statement is incorrect for physisorption?

(A) It arises because of Van der Waal's Force

(B) It is reversible in nature

(C) It is not specific in nature

(D) High temperature is favourable for adsorption. It increases with increase in temperature

65) Which is correct order of flocculating power in the coagulation of As_2S_3 Sol?

(A) $PO_4^{3-} > SO_4^{2-} > Cl^-$

(B) $Al^{3+} > Ba^{2+} > Na^+$

(C) $Al^{3+} < Ba^{2+} < Na^+$

(D) $PO_4^{3-} < SO_4^{2-} < Cl^-$

(Space for Rough Work)

$\frac{1}{2}$

66) Mention percentage of Ag (Silver) in German silver alloy.

(A) 20-30%
(B) 10%
(C) 0.0%
(D) 40-50%

67) Which of the following ore is not in oxide form?

(A) Malachite
(B) Haematite
(C) Magnetite
(D) Zincite

68) By thermal decomposition of which of the following compound very pure dinitroger gas can be obtained?

(A) Ammonium dichromate
(B) Ammonium Chloride
(C) Sodium Azide
(D) Barium Nitrate

69) Which of the following oxide show acidic property?

(A) MnO_2
(B) MnO
(C) Mn_2O_7
(D) Mn_2O_3

70) Which of the following are peroxo acids of Sulphur?

(A) H_2SO_5 and $H_2S_2O_7$
(B) H_2SO_5 and $H_2S_2O_8$
(C) $H_2S_2O_7$ and $H_2S_2O_8$
(D) $H_2S_2O_6$ and $H_2S_2O_7$

(Space for Rough Work)

71) When alkaline $KMnO_4$ is treated with KI, Iodide ion is oxidised to _____.

(A) IO^-

(B) I_2

(C) IO_3^-

(D) IO_4^-

72) In the electronic configuration of which of the following element-electron is arranged in 5d orbital?

(A) $_{64}Gd$

(B) $_{63}Eu$

(C) $_{65}Tb$

(D) $_{66}Dy$

73) What kind of isomerism exists between $[Cr(H_2O)_6]Cl_3$ and $[Cr(H_2O)_5Cl]Cl_2 \cdot H_2O$?

(A) Ionisation

(B) Solvate

(C) Coordination

(D) Linkage

74) How $t_{2g}^4 e_g^0$ configuration is possible for d^4 ion during crystal Field splitting in Octahedral complex?

(A) $\Delta_o = P$

(B) $\Delta_o \leq P$

(C) $\Delta_o < P$

(D) $\Delta_o > P$

(Space for Rough Work)

75) Which of the following species is not expected to be a ligand?

(A) NH_4^+ (B) NO

(C) $H_2N-CH_2-CH_2-NH_2$ (D) CO

76) The following results are as under for the reaction S + Nu → Product by which reaction mechanism this reaction occurs?

Experiment	[S]	[Nu]	Rate $\left(\frac{\text{Concentration}}{\text{Time}}\right)$
1	0.1	0.1	2.2×10^{-3}
2	0.2	0.1	4.4×10^{-3}
3	0.1	0.2	4.4×10^{-3}

(A) Electrophilic addition (B) S_N1

(C) S_N2 (D) Electrophilic substitution

77) Which one is a reaction to prepare CCl_2F_2 (Freon-12) from CCl_4?

(A) Wurtz Reaction (B) Finkelstein

(C) Elimination Reaction (D) Swartz Reaction

(Space for Rough Work)

78) How much gram of ethanol is required to obtain 280 ml dihydrogen at S.T.P. by reaction of C_2H_5OH with Na-Metal? (Mol. wt. of ethanol = 46 g/mol).

(A) 2.3

(B) 4.6

(C) 1.15

(D) 0.575

79) Which product is obtained between reaction of CH_3ONa and $(CH_3)_3CBr$?

(A) Only Ether

(B) Only Alkene

(C) Both alkene and ether

(D) Alcohol

80) Which of the following alcohol undergo dehydration reaction with Cu (Copper) metal at 573 K temperature?

(A) Secondary and Tertiary

(B) Primary & Secondary

(C) Primary and Tertiary

(D) Only Tertiary

(Space for Rough Work)

$n = \frac{w}{M}$

$\frac{V}{22.4l} \times 46 = w$

$\frac{280}{22 \times 1000} \times 46 \times 10$

GUJCET-ME-2023

Test Booklet No. 0900437 **Test Booklet Set No.** **09**

This booklet contains 16 pages.

DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :

1) The Mathematics test consists of 40 questions. Each question carries 1 mark. For each correct response, the candidate will get 1 mark. For each incorrect response, ¼ mark will be deducted. The maximum marks are 40.
2) This Test is of **1 hour** duration.
3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6) The Set No. for this Booklet is **09** . Make sure that the Set No. printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9) Use of White fluid for correction is not permissible on the Answer Sheet.
10) Each candidate must show on demand his / her Admission Card to the Invigilator.
11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12) Use of Simple (Manual) Calculator is permissible.
13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) will be deemed not to have handed over the Answer Sheet and will be dealt with as an unfair means case.
14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16) The candidates will write the Correct Test Booklet Set No. as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

MATHEMATICS

1) $\begin{vmatrix} \sin\frac{11\pi}{36} & \cos\frac{11\pi}{36} \\ \sin\frac{2\pi}{9} & \cos\frac{2\pi}{9} \end{vmatrix} =$ _____.

(A) $\cos\frac{\pi}{12}$ (B) $\sin\frac{2\pi}{9}$

(C) $\cos\frac{5\pi}{12}$ (D) $\sin\frac{7\pi}{12}$

2) If A(K, 1), B(2, 4) and C(1, 1) are the vertices of the ΔABC, such that area of the ΔABC is 6 unit, then K = _____.

(A) –5 and 3 (B) 5 and –3

(C) 3 and –1 (D) 5 and 3

3) $\left\{\frac{d}{dx}\left(x^x + x^{x+1} + x^{x+2}\right)\right\}_{x=e}$ = _____.

(A) $e^e(1 + e^2 + 2e)$ (B) $e^e(3e^2 + 2e + 2)$

(C) $e^e(2e^2 + 4e + 3)$ (D) $e^e(1 + 4e + 2e^2)$

(Space for Rough Work)

$\frac{1}{2}\left|\begin{vmatrix} K & 1 & 1 \\ 2 & 4 & 1 \\ 1 & 1 & 1 \end{vmatrix}\right| = 6$

± 12

$\frac{1}{2}\left(2\sin\frac{11\pi}{36}\cdot\cos\frac{2\pi}{9} - 2\cos\frac{11\pi}{36}\cdot\sin\frac{2\pi}{9}\right)$

$\frac{1}{2}\left(\sin\frac{11\pi}{36} + \frac{2\pi}{9}\right) + \sin\left(\frac{11\pi}{36} + \frac{2\pi}{9}\right) - \sin\left(\frac{11\pi}{36} - \frac{2\pi}{9}\right)$

$+\sin\left(\frac{11\pi}{36} - \frac{2\pi}{9}\right)\Big)$

$\frac{1}{2}\left(\sin\left(\frac{11}{36} + \frac{2\pi}{9}\right) + \right.$

$\sin\left(\frac{11\pi + 8\pi}{36}\right)$

$\frac{19}{36}$

4) If $x = a\cos\theta$, $y = a\sin\theta$, then $\frac{d^2y}{dx^2} =$ _____. (where $a \neq 0$, $\theta \neq k\pi$, $k \in z$)

(A) $-\frac{1}{a}\text{cosec}^2\theta\sec\theta$

(B) $\frac{1}{a}\cot^3\theta$

(C) $\text{cosec}^2\theta$

(D) $-\frac{1}{a}\text{cosec}^3\theta$

5) If $y=\sqrt{\sin^{-1}x+y}$, then $\frac{dy}{dx} =$ _____ (where $x \in (0, 1)$)

(A) $\frac{1}{(2y-1)\sqrt{1-x^2}}$

(B) $\frac{1}{(1-2y)\sqrt{1-x^2}}$

(C) $\frac{1}{(2y-1)\sqrt{x^2-1}}$

(D) $\frac{1}{(2y+1)\sqrt{1-x^2}}$

6) For the function $f(x) = x + x^{-1}$, $x \in [1, 3]$, the value of C for mean value theorem is :

(A) $\sqrt{3}$

(B) 1

(C) $\sqrt{2}$

(D) $\sqrt{5}$

(Space for Rough Work)

$\frac{dy}{dx} = -\frac{a\cos\theta}{a\sin\theta}$

$\frac{dy}{dx} = -\cot\theta$

$\frac{d^2y}{dx^2} = \text{cosec}^2\theta \cdot \frac{d\theta}{dx} = -\frac{\text{cosec}^2\theta}{a\cdot\sin\theta}$

$1-\frac{1}{9} - (1-1)$

$\frac{8}{9} =$

PLK68 (09) [4]

$\frac{dx}{d\theta} = -a\sin\theta$

$f(x) = x + \frac{1}{x}$

$f'(x) = 1 - \frac{1}{x^2}$

$y^2 = \sin^{-1}x + y$

$2y\frac{dy}{dx} = \frac{1}{\sqrt{1-x^2}} + \frac{dy}{dx}$

$\frac{dy}{dx}(2y-1) = \frac{1}{\sqrt{1-x^2}}$

$\frac{dy}{dx} = \frac{1}{\sqrt{1-x^2}(2y-1)}$

$f'(c) = 0$

$\frac{f'(3)-f(1)}{2} = 0$

$\frac{8}{9\times 1} = 1 - \frac{1}{c^2}$

$\frac{4c^2}{9} = c^2 - 1$

$4c^2 = 9c^2 - 9$

$9 = 5c^2$

$c^2 = \sqrt{3}$

7) Rate of change in the volume of a sphere of a radius r w.r.t. its diameter = _____

(A) $4\pi r^2$ (B) $2\pi r^2$

(C) $\frac{2}{3}\pi r^2$ (D) $8\pi r^2$

8) Which of the following function is decreasing on $\left(0, \frac{\pi}{8}\right)$?

(A) $\sin x$ (B) $-\cos x$

(C) $\cos 4x$ (D) $\tan 4x$

9) An approximate value of $(81.5)^{1/4}$ is :

(A) 3.0436 (B) 3.0033

(C) 3.0046 (D) 3.0465

10) Equation of the normal to the curve $x^{2/3} + y^{2/3} = 2$ at (1, 1) is :

(A) $2x - y - 1 = 0$ (B) $x + y - 2 = 0$

(C) $x + y = 0$ (D) $x - y = 0$

11) If $\int \left\{\cos^{-1} x - (1-x^2)^{-1/2}\right\} K\,dx = K \cdot \cos^{-1} x + C$, then K = _____

(A) e^x (B) $-e^x$

(C) e^{-x} (D) $e^{\cos^{-1} x}$

(Space for Rough Work)

$\int \cos^{-1} x - \frac{1}{\sqrt{1-x^2}} u = \frac{4}{3}\pi r^3$ $V = 2r$

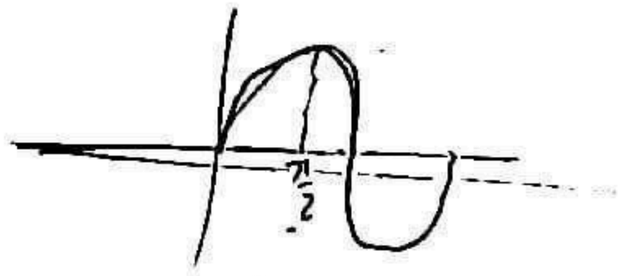
$\frac{du}{dr} = 4\pi r^2$ $\frac{dv}{dr} = 2$

$f(x) = (x)^{\frac{1}{4}}$ $\frac{4\pi r^2}{2}$

$f(x) = 3$ $f'(x) = \frac{1}{4}\frac{1}{x^{\frac{3}{4}}} = 81.$ $\Delta x = 0.5$

$f'(x) = \frac{1}{4\times 27}$ $\Delta y = f'(x) \cdot \Delta x$

[5] $= \frac{1}{4\times 27} \times 0.5$ $3 + 0.0046$



12) $\int \frac{\tan x}{\cos x(\sec x-1)(\sec x-2)}dx =$ _____ + C.

(A) $\log\left|\frac{\sec x-2}{\sec x-1}\right|$ (B) $\log\left|\frac{\sec x+2}{\sec x-1}\right|$

(C) $\log\left|\frac{\operatorname{cosec} x+2}{\operatorname{cosec} x-1}\right|$ (D) $\log\left|\frac{\cos x+1}{\cos x-2}\right|$

13) $\int x^{2019} \cdot e^{x^{2020}} dx =$ _____ + C.

(A) $\frac{1}{2019}e^{x^{2019}}$ (B) $\frac{1}{2020}e^{x^{2019}}$

(C) $e^{x^{2020}}$ (D) $\frac{1}{2020}e^{x^{2020}}$

14) $\int_{\pi/6}^{\pi/3} \frac{1}{1+\tan^4 x}dx =$ _____.

(A) $\pi/12$ (B) $\pi/4$

(C) $\pi/2$ (D) $\pi/6$

(Space for Rough Work)

$x^{2020} = t$

$2020\, x^{2019} = dt$

$\frac{1}{2019}\int e^t dt$

$\frac{1}{1+(\tan^2 x)^2}$

$\tan^{-1}(\tan x)$

$\int \frac{\tan x \sec x}{(\sec x-1)(\sec x-2)} dx$

Let $\sec x = t$

$\int \frac{1}{(t-1)(t-2)} dx$

$\frac{\pi}{3} - \frac{\pi}{6} = \frac{2\pi-\pi}{6} = \frac{\pi}{6}$

$\log\left|\frac{t-\frac{3}{2}-\frac{1}{2}}{t-\frac{3}{2}+\frac{1}{2}}\right|$

$\frac{\sec x-2}{\sec x-1}$

$\frac{gt^2}{4t^2}$

$\int \frac{1}{t^2-2t-t+2}$

$\int \frac{1}{t^2-3t+2}$

$\frac{1}{t^2-3t+\frac{9}{4}-\frac{9}{4}+2}$

$\frac{1}{(t-\frac{3}{2})^2-(\frac{1}{2})^2}$

PLK68 (09) [6]

15) $\int_0^1 (0.001)^{x/3} \cdot e^x \, dx =$ _____.

(A) $\frac{10-10e}{(1+\log_e 10)}$ (B) $\frac{10-e}{e(1-\log_e 10)}$

(C) $\frac{e-10}{10(1-\log_e 10)}$ (D) $\frac{e-10}{10(1+\log_{10} e)}$

16) Area of the region bounded by the ellipse $9x^2 + 4y^2 = 1$ in the first quadrant is :

(A) $\pi/6$ (B) $\pi/24$

(C) $3\pi/2$ (D) 6π

17) Find the area of the region bounded by the line $y = 3 - x$, the X-axis and the ordinates $x = 2$ and $x = 5$.

(A) 3 (B) $1/2$

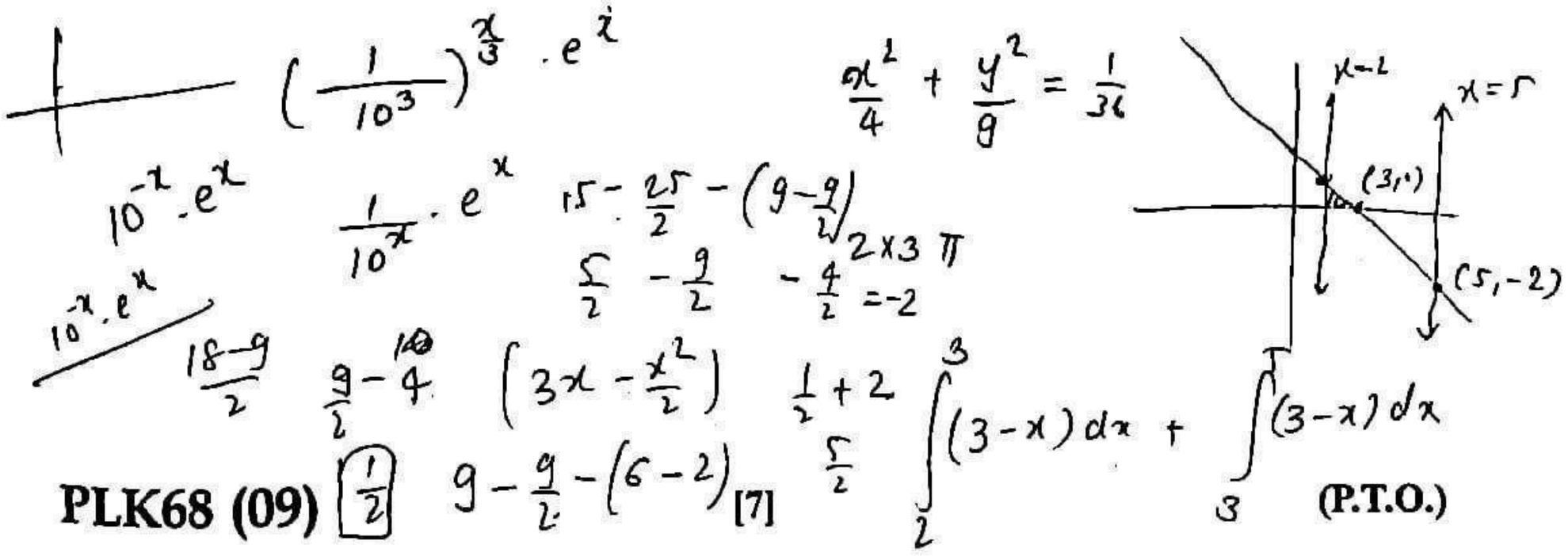
(C) $5/2$ (D) $3/2$

18) Area of the region enclosed by the parabola $y = x^2$ and the line $y = x + 2$ is :

(A) $9/2$ (B) $11/2$

(C) $5/2$ (D) $7/2$

(Space for Rough Work)



19) The order and degree of the differential equation $\sqrt[4]{\left(\frac{d^3y}{dx^3}\right)^5}=\sqrt[3]{\left(\frac{d^2y}{dx^2}\right)^4}$ is :

(A) 2 and 16 (B) 3 and 15

(C) 3 and 16 (D) 2 and 12

20) The integrating factor of the differential equation $\frac{dy}{dx}+y\tan x=\sec x$ is :

(A) $\tan x$ (B) $e^{\sec x}$

(C) $\cos x$ (D) $\sec x$

21) Particular solution of the differential equation $\frac{dy}{dx}=-4xy^2$, Given that $y = 1$, where $x = 0$ is :

(A) $y=\frac{1}{2x^2+1}$ (B) $x=\frac{1}{2y^2+1}$

(C) $y=2x^2+1$ (D) $y=\frac{x}{2x^2+1}$

(Space for Rough Work)

$y(2x^2-1)=-1$ $y=\frac{1}{1-2x^2}$ $\left(\left(\frac{d^3y}{dx^3}\right)^5\right)^{\frac{3}{4}}=\left(\frac{d^2y}{dx^2}\right)^6$ $\frac{d^3y}{dx}$ $\frac{dy}{dx}$ $\frac{1}{y}-1=-2x^2$ $y=-2x^2+1$ $\frac{1-y}{y}=-2x^2$ $\frac{y}{1-y}=\frac{-1}{2x^2-1}$

$\int\frac{1}{y^2}dy=\int-4x\,dx$ $e^{\int P dx}$ $\frac{1}{y}=-4\frac{x^2}{2}+C$ $\tan x=\log(\sec x)$ $\frac{1}{y}=-2x^2+C$ $2x^2y=y-1$ $2x^2y-y=-1$

22) For any vector $\vec{a} \in R^3$, $|\vec{a} \times \hat{i}|^2 + |\vec{a} \times \hat{j}|^2 + |\vec{a} \times \hat{k}|^2 =$ _____.

(A) $2|\vec{a}|^2$ (B) $|\vec{a}|$

(C) $|\vec{a}|^2$ (D) $3|\vec{a}|^2$

23) For the vectors $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = \hat{i} + 2\hat{j} + 3\hat{k}$, $(\vec{a} + \vec{b}).(\vec{a} - \vec{b}) =$ _____.

(A) 11 (B) -11

(C) 5 (D) -5

24) Let the vectors $\vec{a}$ and $\vec{b}$ be such that $|\vec{a}| = 3$ and $|\vec{b}| = \frac{\sqrt{2}}{3}$ and $\vec{a} \times \vec{b}$ is a unit vector, then the angle between $\vec{a}$ and $\vec{b}$ is :

(A) $\pi/2$ (B) $\pi/3$

(C) $\pi/6$ (D) $\pi/4$

25) Cartesian equation of the line through (5, –2, 4) and which is parallel to the vector $3\hat{i} + 2\hat{j} - 8\hat{k}$ is :

(A) $\frac{x-5}{3} = \frac{y+2}{2} = \frac{z-4}{-8}$ (B) $\frac{x-5}{3} = \frac{y-2}{2} = \frac{z+4}{-8}$

(C) $\frac{x-3}{5} = \frac{y-2}{2} = \frac{z+8}{-4}$ (D) $\frac{x-3}{5} = \frac{y+2}{-2} = \frac{z+8}{4}$

(Space for Rough Work)

$(2,3,4).(0,-1,-2)$ $\sin\theta = \frac{1}{3 \times \sqrt{2}/3}$

$-\frac{1}{y} = -2x^2 + C$ $0 - 3 - 8 =$

$\frac{1}{y} = 2x^2 - C$ $\frac{1}{y}\,4 = 2x^2 + 1$

$C > 1$ $1 = 2x^2 y + y$

$y =$

26) If a, b and c are intercepts on X-axis, Y-axis and Z-axis respectively of the plane $x + 2y + 3z = 1$, then $2a + 4b + 3c =$ _____.

(A) 19

(B) 5

(C) 6

(D) 17

$2 \times \frac{6}{6} + 4 \times \frac{1}{3} 3+$

$12 + 12 + 3 \times 2$

$\frac{2}{6} + \frac{4 \times 2}{3 \times 2} + \frac{3 \times 3}{2 \times 3}$

$\frac{2 + 8 + 9}{6} =$

27) Measure of the angle between the line $\vec{r} = (-\hat{i} + 3\hat{k}) + \lambda(2\hat{i} + 3\hat{j} + 6\hat{k})(\lambda \in R)$ and the plane $10x + 2y - 11z = 3$ is :

(A) $\pi/2$

(B) $\cos^{-1}(8/21)$

(C) $\sin^{-1}(8/21)$

(D) $\sin^{-1}(1/21)$

28) The coordinates of the corner points of the bounded feasible region are (0, 10), (5, 5), (15, 15) and (0, 20). The maximum of the objective function $Z = 10x + 20y$ is :

(A) 600

(B) 550

(C) 400

(D) 450

$\frac{x}{6} + \frac{1}{3}y + \frac{z}{2} \to \frac{1}{6}$

(Space for Rough Work)

$12 + 12 + 6$

$(0,10) \to 200$

$(5,5) \to 50 + 100 = 150$

$(15,15) \to 150 + 300 \to 450$

$(0,20) \to 0 + 400 \to 400$

$-\frac{40}{105} \sin\left(\frac{8}{21}\right)$

$20 + 6 - 66$

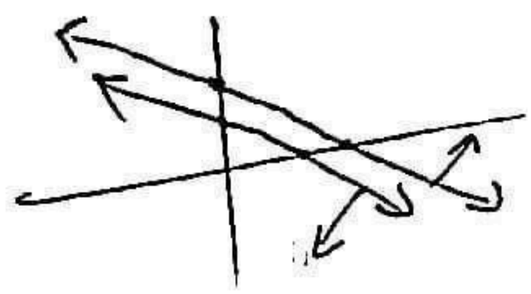
$\sin^{-1}\left(\frac{(2,3,6)\,(10,2,11)}{\sqrt{\quad}\ 7 \times 15}\right)$

$\sin^{-1}\left(\frac{20 + 6 - 66}{105}\right)$

$-\frac{34}{105}$

29) Minimise objective function $z = 3x + 2y$ subject to the constraints :

$x + y \geq 8, x + y \leq 5, x \geq 0, y \geq 0$ is :



(A) 15

(B) 6

(C) 24

(D) No feasible region and hence no feasible solution

30) For independent events A and B $P(A) = P$, $P(B) = \frac{1}{2}$ and $P(A \cup B) = \frac{3}{5}$, then $P =$ _____.

(A) $\frac{1}{10}$ (B) $\frac{1}{5}$

(C) $\frac{1}{2}$ (D) $\frac{2}{5}$

31) If a fair coin is tossed 5 times, then the probability of getting exactly 3 heads is :

(A) $\frac{5}{16}$ (B) $\frac{3}{32}$

(C) $\frac{1}{32}$ (D) $\frac{5}{32}$

(Space for Rough Work)

$P(A \cap B) = P + \frac{1}{2} - \frac{3}{5}$

$\frac{P}{2} = P + \frac{1}{2} - \frac{3}{5}$

$\frac{P}{2} - P = \frac{5 - 6}{10}$

$+\frac{P}{2} = +\frac{1}{10}$

$2^5 = 32$

32) If the probability distribution of X is :

X	1	2	3	4	5	6
P(X)	$1/6$	$1/6$	$1/6$	$1/6$	$1/6$	$1/6$

then Var.(X) = _____.

(A) $91/6$

(B) $21/6$

(C) $35/12$

(D) $35/3$

33) Relation R in the set $\{\pi, \pi^2, \pi^3\}$ defined by

$R = \{(\pi, \pi), (\pi^2, \pi^2), (\pi^3, \pi^3), (\pi, \pi^2), (\pi^2, \pi^3)\}$ is :

(A) Reflexive but neither symmetric nor transitive

(B) Symmetric but neither reflexive nor transitive

(C) Transitive but neither reflexive nor symmetric

(D) Only symmetric and transitive

34) If $m * n = \frac{mn}{2}$, $\forall$ m, n $\in Q^+$, then $(4 * 3)^{-1}$ = _____.

(A) $1/6$

(B) $3/2$

(C) 2

(D) $2/3$

(Space for Rough Work)

$\frac{1}{6} + 2^1 \times \frac{1}{6} + 3^1 \times \frac{1}{6} + 4^1 \times \frac{1}{6} + 5^1 \frac{1}{6} + 6^1 \times \frac{1}{6}$

$\frac{1}{6} + \frac{1}{3} + \frac{1}{2} + \frac{2}{\frac{4\times3}{2}} \quad \frac{1}{6}$

$\frac{21}{6} - \frac{91}{6} = \frac{35}{63}$

35) $\cos^{-1}\left\{\cot\left(\sum_{i=1}^{3}\cot^{-1} i\right)\right\} =$ _____.

(A) 0 (B) $\pi/2$

(C) π (D) $-\pi/2$

36) $\cos\left(\sec^{-1} 2\right) + \tan\left(\cot^{-1}\sqrt{3}\right) + \sin\left(\text{cosec}^{-1}\frac{2}{\sqrt{3}}\right) =$ _____.

(A) $\frac{3+\sqrt{3}}{5\sqrt{3}}$ (B) $\frac{7+\sqrt{3}}{5\sqrt{3}}$

(C) $\frac{5+\sqrt{3}}{2\sqrt{3}}$ (D) $\frac{7-\sqrt{3}}{2\sqrt{3}}$

37) If $\cos\left(\cos^{-1}\frac{\sqrt{3}}{2} + \sin^{-1} x\right) = 1$, then value of x is :

(A) $-1/2$ (B) $\sqrt{3}/2$

(C) $-\sqrt{3}/2$ (D) 0

(Space for Rough Work)

$\cos^{-1}\left(\cot\left(\cot^{-1}1 + \cot^{-1}2 + \cot^{-1}3\right)\right)$

$\left(\tan\frac{\pi}{4} \quad \tan^{-1}\frac{\frac{1}{2}+\frac{1}{3}}{1-\frac{1}{6}}\right) + \sin^{-1}x = 0$

$\frac{\pi}{4} + \frac{\pi}{4} \quad \frac{\frac{5}{6}}{\frac{6-1}{6}}$

$\cos^{-1}\left(\cot\frac{2\pi}{4}\right) \quad \cot\frac{\pi}{2}$

$\cos^{-1}(0) \Rightarrow \frac{\pi}{2}$

$\frac{\pi}{6} = -\sin^{-1}x$

$x = -\sin\left(\frac{\pi}{6}\right)$

$= -\frac{1}{2}$

$\frac{1}{\sqrt{3}2} + \frac{1}{\sqrt{3}\times 2} + \frac{\sqrt{3}}{2}$

$\frac{\sqrt{3}+2+3}{\sqrt{3}2}$

$\frac{5+\sqrt{3}}{2\sqrt{3}}$

38) If $\begin{bmatrix} x+y & -2 \\ 7+z & x-y \end{bmatrix} = \begin{bmatrix} -7 & -2 \\ 5 & 0 \end{bmatrix}$, then $2x + 4y + 2z =$ _____.

(A) -9

(B) 17

(C) -25

(D) -14

39) If A = [1 2] and $B = \begin{bmatrix} 3 \\ 4 \end{bmatrix}$, then $(BA)' =$ _____

(A) $\begin{bmatrix} 3 & 6 \\ 4 & 8 \end{bmatrix}$

(B) $\begin{bmatrix} 3 & 4 \\ 6 & 8 \end{bmatrix}$

(C) $\begin{bmatrix} 4 & 8 \\ 6 & 3 \end{bmatrix}$

(D) [11]

40) If $A = \begin{bmatrix} 0 & 0 & -5 \\ 0 & -5 & 0 \\ -5 & 0 & 0 \end{bmatrix}$, then $A^2 =$ _____

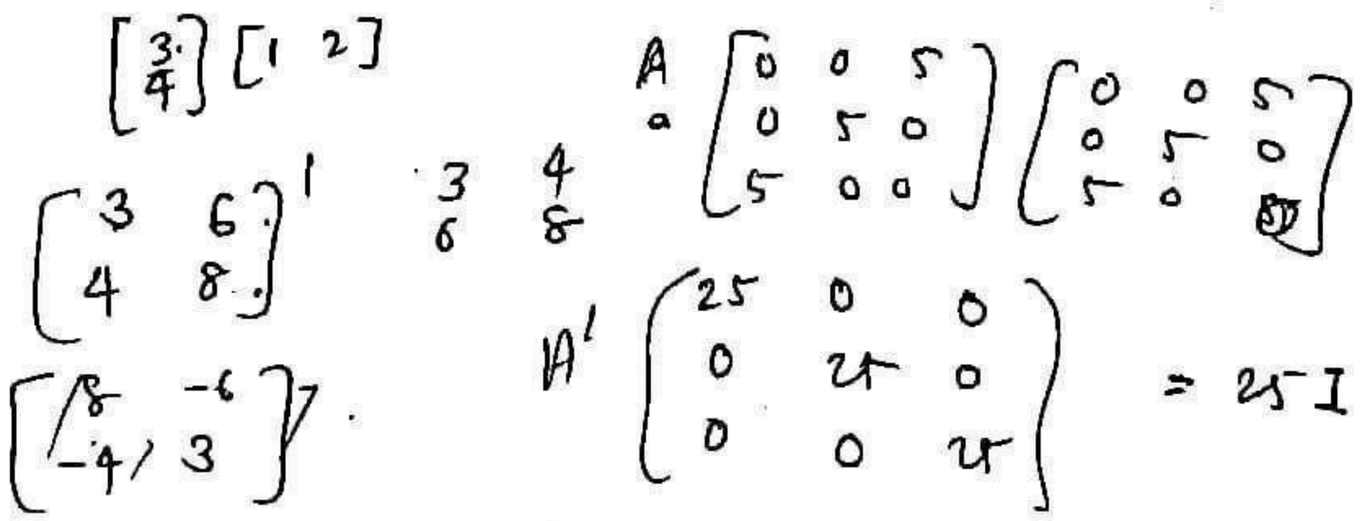
(A) $-5\,I$

(B) $5\,A$

(C) $25\,A$

(D) $25\,I$

(Space for Rough Work)



GUJCET-23 OMR PROVISIONAL ANS-KEY (MATHS) (GHE)																			
TQP	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Q.1	B	D	B	A	B	D	A	B	C	C	C	C	D	C	C	A	C	D	A	B
Q.2	D	C	D	A	C	B	D	B	B	B	D	D	A	B	C	C	A	A	C	D
Q.3	A	B	C	B	A	C	B	D	C	A	D	B	B	C	D	C	D	C	A	C
Q.4	C	A	A	D	D	A	B	C	D	D	A	C	B	A	C	D	D	D	D	C
Q.5	B	B	D	A	C	C	D	C	A	B	B	A	D	B	B	B	C	C	B	A
Q.6	C	D	D	B	C	B	B	A	A	A	C	D	A	D	A	B	B	A	C	B
Q.7	A	C	B	C	A	A	A	B	B	B	B	D	B	A	B	D	A	B	A	B
Q.8	D	A	C	D	D	D	C	B	C	D	D	C	D	A	C	B	B	B	C	D
Q.9	C	B	B	D	C	B	A	A	C	C	A	B	C	B	A	C	D	D	B	C
Q.10	A	A	A	B	A	B	B	B	D	C	C	A	A	D	D	A	C	C	D	C
Q.11	C	C	D	A	B	A	C	C	A	A	B	B	D	A	C	C	A	C	C	D
Q.12	D	D	C	C	D	D	D	D	A	B	C	D	D	B	C	B	B	A	B	C
Q.13	B	A	B	A	D	B	B	C	D	B	A	C	B	C	A	A	A	B	C	B
Q.14	B	C	C	D	A	A	B	B	A	D	D	A	C	D	D	D	C	B	D	A
Q.15	A	A	D	B	C	C	C	D	C	C	C	B	B	D	C	B	D	A	A	B
Q.16	C	D	A	C	B	D	D	A	B	C	A	A	A	B	A	B	A	B	A	C
Q.17	C	B	C	A	C	D	B	B	C	D	C	C	D	A	B	A	C	C	B	A
Q.18	D	B	D	C	D	A	C	B	A	C	D	D	C	C	D	D	A	D	C	D
Q.19	B	C	C	B	A	B	A	D	B	B	B	A	B	A	D	B	D	C	C	C
Q.20	B	A	A	D	B	C	D	A	D	A	B	C	C	D	A	A	B	B	D	C
Q.21	D	A	B	C	C	B	D	B	A	B	A	A	D	B	C	C	B	D	A	A
Q.22	B	D	B	B	B	D	C	D	A	C	C	D	A	C	B	D	C	A	A	D
Q.23	C	B	D	C	A	A	B	C	B	A	C	B	C	A	C	D	A	B	D	C
Q.24	A	B	C	D	D	C	A	A	D	D	D	B	D	C	D	A	A	B	A	A
Q.25	C	D	C	A	B	B	B	D	A	C	B	C	C	B	A	B	D	D	C	B
Q.26	B	B	A	A	A	C	D	D	B	C	B	A	A	D	B	C	B	A	B	D
Q.27	A	A	B	B	B	A	C	B	C	A	D	A	B	C	C	B	B	B	C	D
Q.28	D	C	B	C	D	D	A	C	D	D	B	D	B	B	B	D	D	D	A	A
Q.29	B	A	A	C	C	C	B	B	D	C	C	B	D	C	A	A	B	C	B	C
Q.30	B	B	B	D	C	A	A	A	B	A	A	B	C	D	D	C	A	A	D	B
Q.31	A	C	C	A	A	C	C	D	A	B	C	D	C	A	B	B	C	D	A	C
Q.32	D	D	D	A	B	D	D	C	C	D	B	B	A	A	A	C	A	D	A	D
Q.33	B	B	C	D	B	B	A	B	A	D	A	A	B	B	B	A	B	B	B	A
Q.34	A	B	B	A	D	B	C	C	D	A	D	C	B	C	D	D	C	C	D	B
Q.35	C	C	D	C	C	A	A	D	B	C	B	A	A	C	C	C	D	B	A	C
Q.36	D	D	A	B	C	C	D	A	C	B	B	B	B	D	C	A	B	A	B	B
Q.37	D	B	B	C	D	C	B	C	A	C	A	C	C	A	A	C	B	D	C	A
Q.38	A	C	B	A	C	D	B	D	C	D	D	D	D	A	B	D	C	C	D	D
Q.39	B	A	D	B	B	B	C	C	B	A	B	B	C	D	B	B	D	B	D	B
Q.40	C	D	A	D	A	B	A	A	D	B	A	B	B	A	D	B	B	C	B	A

GUJCET-BE-2023

Test Booklet No. 0700944 **Test Booklet Set No.** **07**

This booklet contains 16 pages.

DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :

1) The Biology test consists of 40 questions. Each question carries 1 mark. For each correct response, the candidate will get 1 mark. For each incorrect response ¼ mark will be deducted. The maximum marks are 40.
2) This Test is of **1 hour** duration.
3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6) The Set No. for this Booklet is 07 . Make sure that the Set No. printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9) Use of White fluid for correction is not permissible on the Answer Sheet.
10) Each candidate must show on demand his / her Admission Card to the Invigilator.
11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12) Use of Simple (Manual) Calculator is permissible.
13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) will be deemed not to have handed over the Answer Sheet and will be dealt with as an unfair means case.
14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16) The candidates will write the Correct Test Booklet Set No. as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

SE

BIOLOGY

1) Alexander Fleming was the first person to discover 'Penicillin' by chance. He worked on which bacterium?

(A) Haemophilus Influenzae

(B) Staphylococci

(C) Streptococcus Pneumoniae

(D) Salmonella Typhi

2) Match the following. Choose the correct option.

	Column - I		Column - II
(i)	Propionibacterium Shermanii	(P)	Fermenting fruit prices to produce ethanol
(ii)	Saccharomyces Cerevisiae	(Q)	Citric Acid
(iii)	Aspergillus niger	(R)	'Swiss Cheese'
(iv)	Trichoderma polysporum	(S)	Immuno-suppressive

(A) (i - R); (ii - Q); (iii - P); (iv - S)

(B) (i - P); (ii - S); (iii - R); (iv - Q)

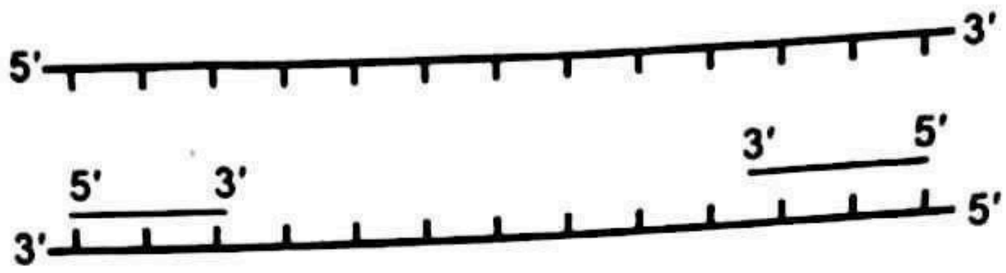
(C) (i - P); (ii - Q); (iii - R); (iv - S)

(D) (i - R); (ii - P); (iii - Q); (iv - S)

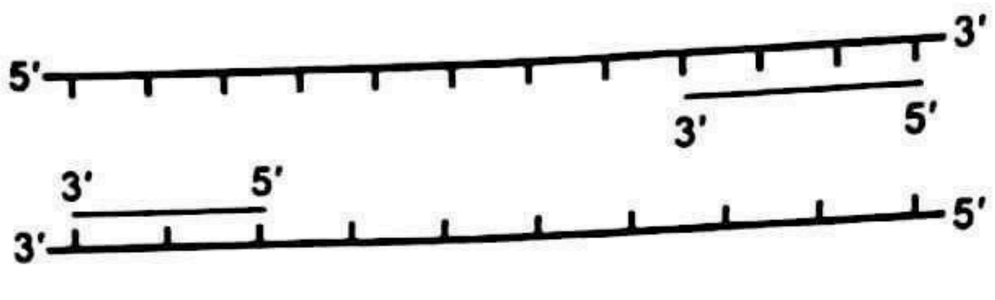
(Space for Rough Work)

3) Choose the correct option for the 'Annealing' step in P.C.R. from the following diagrammatic representations :

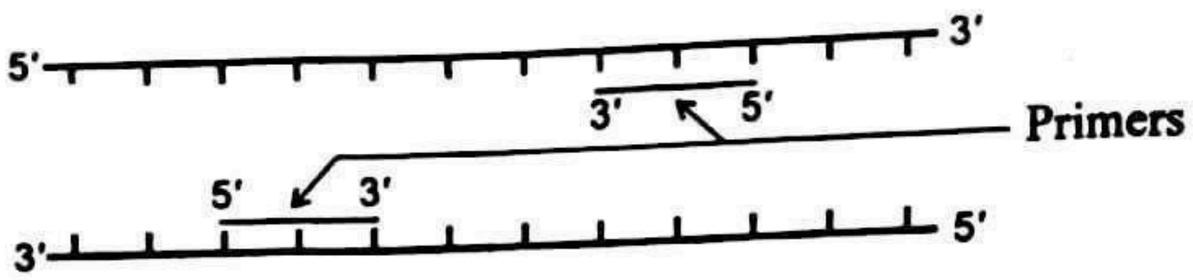
(A)



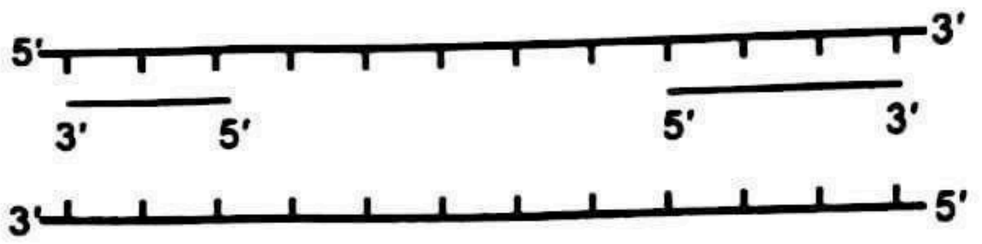
(B)



(C)



(D)



4) In extraction of genetic material (DNA), which enzyme is not used?

(A) Ribonuclease

(B) Cellulose

(C) Protease

(D) Both Protease and Ribonuclease

(Space for Rough Work)

5) In E.Coli cloning vector pBR322, antibiotic resistance genes (amp^R) indicates which restriction sites?

(A) PvuI, PstI
(B) PvuII, EcoRI
(C) BamHI, SalI
(D) EcoRI, HindIII

6) Proteins encoded by the genes _____ and _____, which control the cotton bollworms.

(A) Cry I Ab and Cry I Ac.
(B) Cry I Ab and Cry II Ac.
(C) Cry I Ac and Cry II Ab.
(D) Cry II Ab and Cry II Ac.

7) Choose the correct option from the statements given below which do not support the reasons for production of transgenic animals :

(A) to test the safety of the polio vaccine
(B) for production of $\alpha - 1$ antitrypsin used to treat emphysema
(C) for diagonising genetic disorder
(D) to test the toxicity of drugs

8) Choose the correct option showing population interactions

(A) Sea-anemone and clown fish → Predation
(B) Monarch butterfly and bird → Competition
(C) Egret and grazing cattle → Parasitism
(D) Fig and wasp → Mutualism

9) _____ and _____ are the two basic processes which contribute to an increase in population density.

(A) Natality and Immigration
(B) Mortality and Immigration
(C) Mortality and Emigration
(D) Natality and Emigration

(Space for Rough Work)

10) A few organisms can tolerate and thrive in a wide range at temperatures. They are known as :

(A) Eurythermal
(B) Stenohaline
(C) Stenothermal
(D) Euryhaline

11) In a particular condition, decomposition rate is slower if detritus is rich in _____ and _____.

(A) nitrogen and sugar
(B) ligin and chitin
(C) ligin and nitrogen
(D) chitin and sugar

12) In which trophic level, you will keep the species 'Sparrow'?

(A) Only Primary Consumer
(B) Only Secondary Consumer
(C) Both Primary and Secondary Consumer
(D) Both Secondary and Tertiary Consumer

13) Cryopreservation technique are practiced for preserving the gamates of threatened species in viable and fertile condition for long periods. Choose the correct temperature in which it is done?

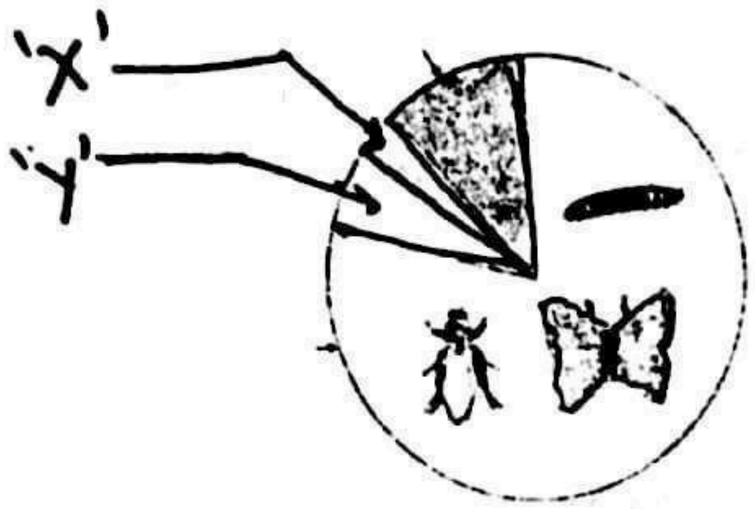
(A) – 296°C
(B) – 42°C
(C) – 90°C
(D) – 196°C

14) In species-Area relationship, select the naturalist and geographer who observed that within a region species richness increased with increasing explored area, but only up to a limit.

(A) Paul Ehrlich
(B) Alexander Von Humboldt
(C) Edward Wilson
(D) David Tilman

(Space for Rough Work)

15) Following figure represent the global biodiversity showing proportionate number of species at major taxa of invertebrates. Identify 'X' and 'Y'.



(A) X = Molluscs; Y = Crustaceans (B) X = Crustaceans; Y = Molluscs
(C) X = Crustaceans; Y = Insects (D) X = Molluscs; Y = Insects

16) According to Central Pollution Control Board (CPCB), particulate size _____ in diameter are responsible for Causing the greatest harm to human health.
(A) 10.0 micrometers (B) 5.0 micrometers
(C) 2.5 micrometers (D) 7.5 micrometers

17) Choose the correct option by matching Column - I and Column - II

	Column - I		Column - II
(P)	Water (Prevention and Control of Pollution) Act,	(i)	1987
(Q)	Environment (Protection) Act,	(ii)	1981
(R)	Montreal Protocol	(iii)	1974
(S)	Air (Prevention and Control of Pollution) Act,	(iv)	1986

(A) (P - iii), (Q - iv), (R - i), (S - ii)
(B) (P - iii), (Q - i), (R - iv), (S - ii)
(C) (P - ii), (Q - iii), (R - iv), (S - i)
(D) (P - iv), (Q - iii), (R - ii), (S - i)

(Space for Rough Work)

18) Choose the correct option which is correct for 'asexual reproduction'.

Statement P :- Reproductive structures for Chlamydomonas are zoospores.

Statement Q :- Amoeba undergoes both binary and multiple fission under respective conditions.

Statement R :- Fragmentation occurs in Hydra & sponges.

(A) Statements P is true

(B) Statements Q and R are true

(C) Statements P and Q are true

(D) Statements P, Q & R are true

19) Match the following. Choose the correct option.

	Column - I		Column - II		Column - III
(i)	Homothallic	(P)	Monoecious	(X)	Coconut & Chara
(ii)	Heterothallic	(Q)	Dioecious	(Y)	Papaya & Merchantia

(A) (I - ii), (II - Q), (III - X)

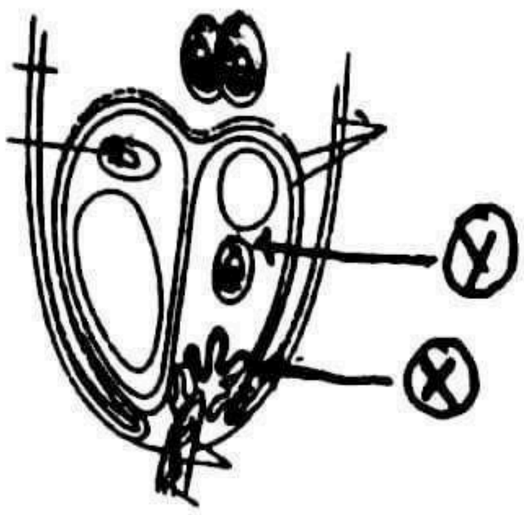
(B) (I - i), (II - P), (III - X)

(C) (I - i), (II - P), (III - Y)

(D) (I - i), (II - Q), (III - Y)

(Space for Rough Work)

20) What indicates 'X' and 'Y' in the following diagram?



(A) X = Egg cell ; Y = Synergid

(B) X = Synergid ; Y = Filiform apparatus

(C) X = Filiform apparatus ; Y = Synergid

(D) X = Egg cell; Y = Filiform apparatus

21) In flowering plants, 'triple fusion' is the combination of _____.

(A) Central polar nuclei + One male gamate

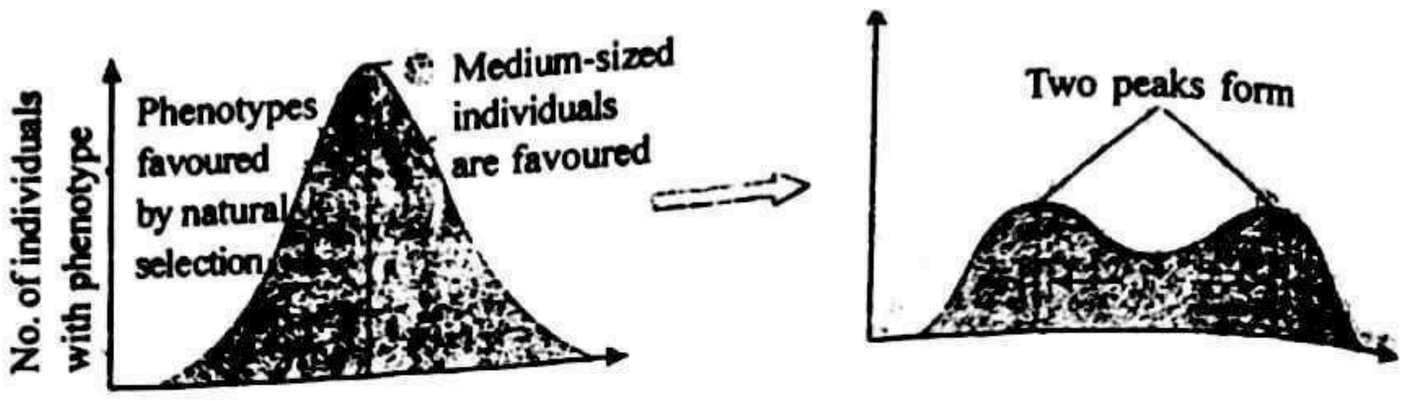
(B) Two antipodal cells + One male gamate

(C) Two synergids + One male gamate

(D) Egg cell + Two male gamates

(Space for Rough Work)

22) The diagram given below represent the operation of natural selection on different trails. Choose the correct option.



(A) Disruptive
(B) Directional
(C) Stabilising
(D) Stabilising & Directional Both

23) This defines the 'Operon'.
(A) Arrangement of operator + regulatory gene
(B) Arrangement of structural gene + operator + regulatory gene
(C) Arrangement of structural gene + regulatory gene
(D) Arrangement of structural gene + promoter + regulatory gene

24) In a microsporangium, which layer is generally having more than one nucleus?
(A) Tapetum
(B) Middle layers
(C) Endothecium
(D) Epidermis

25) Choose the correct sequence of transport at sperms in human from seminiferous tubules is :
(A) Vasa efferentia → Rete testis → Epididymis → Vas deferens
(B) Rete testis → Epididymis → Vasa efferentia → Vas deferens
(C) Rete testis → Vasa efferentia → Epididymis → Vas deferens
(D) Vas deferens → Vasa efferentia → Epididymis → Rete testis

(Space for Rough Work)

26) These hormones are produced in women during pregnancy only:

(A) hCG, progestogens & relaxin

(B) hCG, hPL & relaxin

(C) hPL, estrogen & relaxin

(D) progestogens, estrogens & relaxin

27) During Human fertilisation, this induces changes and acts as a barrier and ensure that only one sperm can enter and fertilise the ovum.

(A) Perivitelline space

(B) Zona pellucida

(C) Corona radiata

(D) Cytoplasm of the ovum

28) In females, MTP's are considered relatively safe during _____ weeks of pregnancy.

(A) 30 to 36

(B) 12 to 24

(C) 16 to 28

(D) 11 to 22

29) Choose the correct option which can be used by the females as injections or implants under the skin for emergency contraceptive from the following :

(i) progestogens

(ii) progestogen + estrogen combinations

(iii) estrogen

(iv) progestasert

(A) (i) & (ii)

(B) (ii) & (iii)

(C) (i) & (iv)

(D) (i) & (iii)

30) 'Sex-determination' in Humans is identified by :

(A) Somatic cell → autosomes

(B) Germ cell → sex chromosome

(C) Germ cell → autosomes

(D) Somatic cell → sex chromosomes

(Space for Rough Work)

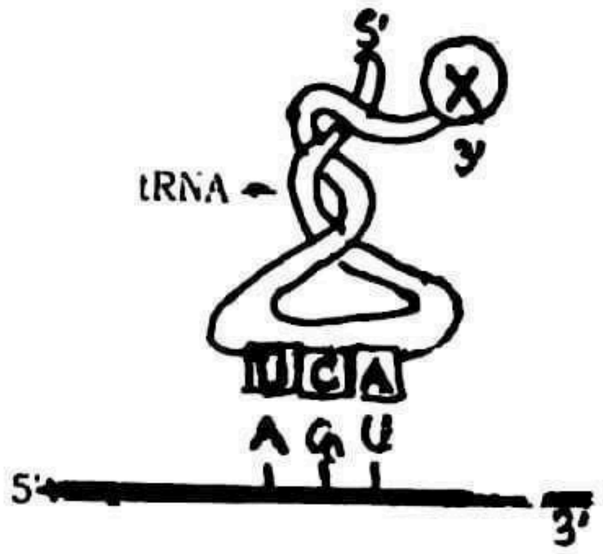
31) In Turner's Syndrome, during cell division, which type of Aneuploidy is seen?

(A) (2n + 2)
(B) (2n – 1)
(C) (2n + 1)
(D) (2n – 2)

32) A cross was made by Mendel with pea plant between violet flower (VV) in axial position (AA) and white flower (vv) in terminal position (aa). What ratio of white flowers (vv) phenotypically he had received in F_2 generation?

(A) 4
(B) 3
(C) 9
(D) 1

33) In the given figure below, what does the 'X' represents?

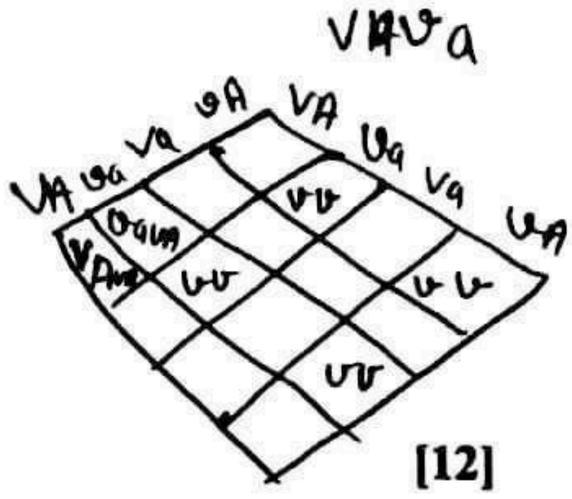


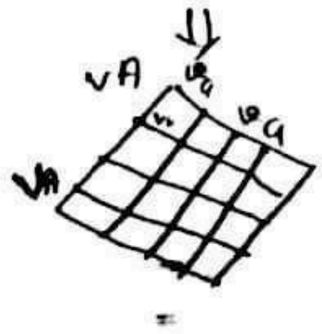
(A) Glycine (Gly)
(B) Tyrosine (Tyr)
(C) Valine (Val)
(D) Serine (Ser)

(Space for Rough Work)

XO

VVAA × vvaa





34) (i) The Codon is read in t RNA in a contaguous fashion. There is no punctuations.
(ii) Some amino acids are coded by more than one codon.
(iii) UUU would code for phenylalanine.
(iv) GAA is a stop terminator codon.

Comparing the above statements (i - iv) select the correct option marked with T(True) & F(False) w.r.t. salient features of genetic code.

(A) FTTF
(B) FFTF
(C) TTFF
(D) FT FT

35) From 15 mya to 40,000 years back, what will be the correct series of indication in evolution of man?

(A) Australopithecines → Homo erectus → Ramapithecus → Neanderthal
(B) Ramapithecus → Homo erectus → Australopithecines → Neanderthal
(C) Australopithecines → Ramapithecus → Homo erectus → Neanderthal
(D) Ramapithecus → Australopithecines → Homo erectus → Neanderthal

36) In the life cycle of plasmodium sporozoites _____ undergoes asexual reproduction in which cells?

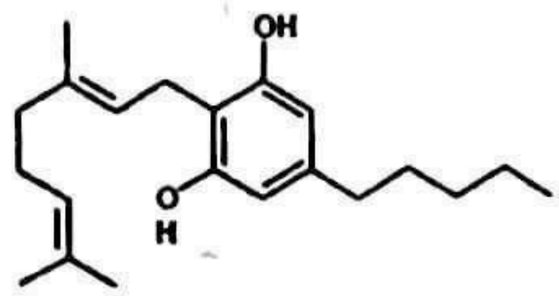
(A) Intestinal cells & R.B.C.
(B) Liver cells & R.B.C.
(C) Liver cells & W.B.C.
(D) Salivary glands & W.B.C.

37) This is the correct statement for IgE.

(A) Inhibits the secretion of histamine and serotonin from mast cells
(B) Doesnot stimulate B cells
(C) Giving immune response to allergens
(D) This antibody is received from the mother to the foetus through placenta during pregnancy

(Space for Rough Work)

38) Identify the plant, from where a chemical is extracted whose skeletal structure is given below.



(A) Saccharum officinarum

(B) Papaver somniferum

(C) Cannabis sativa

(D) Eichhornia crassipes

39) Choose the correct option, which is not true for 'inbreeding depression.

(A) In breeding refers to the mating of more closely related individuals within the same breed for 4-6 generations which lead to 'inbreeding depression'

(B) It increases homozygosity

(C) Close inbreeding reduces fertility and productivity

(D) It is a practice of mating animals within the same breed but having no common ancestors on either side of their pedigree up to 4-6 generations.

40) From IR-8 and Taichung Native - I, which variety of semi-dwarf crop was derived?

(A) Sugarcane

(B) Rice

(C) Wheat

(D) Maize

(Space for Rough Work)

6/6

GUJCET-23 OMR PROVISIONAL ANS-KEY (BIOLOGY) (HIN-ENG)																				
TQP	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Q.1	*	A	D	C	D	A	B	C	C	D	B	B	B	D	D	A	C	B	A	D
Q.2	B	A	B	A	B	A	D	D	C	C	C	*	C	A	C	B	D	C	B	A
Q.3	A	B	B	A	D	D	C	D	A	C	A	A	A	B	C	C	A	A	C	B
Q.4	C	A	*	C	C	B	B	A	C	A	B	B	C	B	D	A	A	B	*	B
Q.5	C	C	C	D	A	B	A	C	D	B	B	B	A	D	A	A	B	B	A	A
Q.6	B	B	B	C	A	D	C	C	A	*	*	A	B	A	B	D	C	D	B	A
Q.7	C	B	B	D	D	A	C	B	A	C	C	D	D	A	B	C	D	C	C	D
Q.8	A	*	C	A	C	B	D	C	B	A	B	A	D	D	A	C	B	*	C	B
Q.9	B	A	A	B	C	C	A	A	C	B	B	D	A	B	A	B	B	B	A	B
Q.10	B	B	C	B	D	A	A	B	*	B	C	B	B	B	D	C	C	D	C	C
Q.11	*	B	A	D	A	A	B	B	A	C	D	C	B	C	B	D	A	C	B	C
Q.12	C	A	B	A	B	D	C	D	B	B	C	C	A	B	B	B	*	C	A	D
Q.13	B	D	D	A	B	C	D	C	C	A	D	D	D	B	C	B	B	B	A	C
Q.14	B	A	D	D	A	C	B	*	C	C	B	B	B	D	C	A	C	C	*	C
Q.15	C	D	A	B	A	B	B	B	A	C	A	B	C	C	D	C	A	D	C	A
Q.16	D	B	B	B	D	C	C	D	C	*	A	D	D	C	C	*	A	B	A	B
Q.17	C	C	B	C	B	D	A	C	B	B	D	C	D	A	C	B	B	B	A	*
Q.18	D	C	A	B	B	B	*	C	A	C	B	B	A	C	A	A	A	*	C	C
Q.19	B	D	D	B	C	B	B	B	A	C	B	A	C	D	B	C	C	C	D	A
Q.20	A	B	B	D	C	A	C	C	*	B	D	C	C	A	*	C	B	B	C	B
Q.21	A	B	C	C	D	C	A	D	C	D	A	C	B	A	C	B	B	B	D	B
Q.22	D	D	D	C	C	*	A	B	A	B	B	D	C	B	A	C	*	C	A	C
Q.23	B	C	D	A	C	B	B	B	A	D	C	A	A	C	B	A	A	A	B	B
Q.24	B	B	A	C	A	A	A	*	C	C	A	A	B	*	B	B	B	C	B	A
Q.25	D	A	C	D	B	C	C	C	D	A	A	B	B	A	C	B	B	A	D	C
Q.26	A	C	C	A	*	C	B	B	C	A	D	C	D	B	B	*	A	B	A	C
Q.27	B	C	B	A	C	B	B	B	D	D	C	D	C	C	A	C	D	D	A	*
Q.28	C	D	C	B	A	C	*	C	A	C	C	B	*	C	C	B	A	D	D	B
Q.29	A	A	A	C	B	A	A	A	B	C	B	B	B	A	C	B	D	A	B	C
Q.30	A	A	B	*	B	B	B	C	B	D	C	C	D	C	*	C	B	B	B	C
Q.31	D	B	B	A	C	B	B	A	D	A	D	A	C	B	B	D	C	B	C	B
Q.32	C	C	D	B	B	*	A	B	A	B	B	*	C	A	C	C	C	A	B	D
Q.33	C	D	C	C	A	C	D	D	A	B	B	B	B	A	C	D	D	D	B	B
Q.34	B	B	*	C	C	B	A	D	D	A	A	C	C	*	B	B	B	B	D	D
Q.35	C	B	B	A	C	B	D	A	B	A	C	A	D	C	D	A	B	C	C	C
Q.36	D	C	D	C	*	C	B	B	B	D	*	A	B	A	B	A	D	D	C	A
Q.37	B	A	C	B	B	D	C	B	C	B	B	B	B	A	D	D	C	D	A	A
Q.38	B	*	C	A	C	C	C	A	B	B	A	A	*	C	C	B	B	A	C	D
Q.39	A	B	B	A	C	D	D	D	B	C	C	C	C	D	A	B	A	C	D	C
Q.40	C	C	C	*	B	B	B	B	D	C	C	B	B	C	A	D	C	C	A	C

નોંધ – જે પ્રશ્નમાં Asterisk (*) માર્ક કરેલ છે તે પ્રશ્ન માટે તમામને +1 ગુણ આપવામાં આવશે.