NEET Sarthi KOTA

PRE-NURTURE DIVISION

SESSION: 2021-22

NSEJS

MOCK TEST-01

Medium: English

IMPORTANT INSTRUCTIONS

Do not open this test Booklet until you are asked to do so

1. The students must occupy allotted seat in the specified room.
2. Duration of Test is 2 hours and question paper contains 80 Questions [Physics (Q.1 to Q.20), Chemistry (Q.21 to Q.40), Biology (Q.41 to Q.60), Mathematics (Q.61 to Q.80)]. The Maximum Marks are 240.
3. Each Questions Carries 3 marks each.
4. Answers are to be given on a separate OMR sheet.
5. There is negative marking (-1).
6. Mark you answer for question 1 to 80 on the OMR Sheet by darkening the circles.
7. Please follow the instruction given on the OMR sheet for marking the answers.
8. Before attempting the question paper, ensure, that is contains all the pages and not question is missing.
8. Students must not use log tables and calculator, Cell phones or any other material in the examination hall.
9. Rough work can be done anywhere in the booklet but not on the OMR sheet/loose paper.

PHYSICS

Q.1 The mass of the moon is about 1.2 % of the mass of the earth. Compared to the gravitational force the earth exerts on the moon and, the gravitational force, the moon exerts on earth :

(1) is the same (2) is smaller

(3) is greater (4) varies with its phase

Q.2 Two objects are placed at some distance, if their masses becomes two times and distance between them becomes half then value of new gravitational force will be :

(1) 4 times (2) 8 times

(3) 16 times (4) 32 times

Q.3 On a planet (Whose size is the same as that of earth and mass 4 times to the earth) the energy needed to lift a 2 kg mass vertically upward through 2 m distance on the planet is: (g =10 m/sec^2 on surface of earth)

(1) 16 J (2) 32 J (3) 160 J (4) 320 J

Q.4 Two satellite S_1 and S_2 revolve around a planet in the same direction in circular orbits. Their period of revolution are 1 hour and 8 hour respectively. The radius of S_1 is 10^4 km/hr. The velocity of S_2 with respect to S_1 will be:

(1) $\pi \times 10^4$ km/hr (2) $\pi/3 \times 10^4$ km/hr

(3) $2\pi \times 10^4$ km/hr (4) $\pi/2 \times 10^4$ km/hr

Q.5 If the radius of earth is to decrease by 4% and its density remains same, then its escape velocity will:

(1) remain same (2) increases by 4%

(3) decrease by 4% (4) increase by 2%

Q.6 The acceleration due to gravity on the surface of the moon is one sixth that on the surface of earth and the diameter of the moon is one fourth of that of earth. The ratio of escape velocity on moon and earth will be:

(1) $\frac{1}{\sqrt{24}}$ (2) $\frac{2}{\sqrt{16}}$

(3) $\frac{2}{\sqrt{3}}$ (4) $\sqrt{24}$

Q.7 Acceleration due to gravity on a planet is 10 times the value on the earth. Escape velocity for the planet and the earth are V_p and V_e respectively Assuming that the radii of the planet and the earth are the same, then:

(1) $V_p = 10\ V_e$ (2) $V_p = \sqrt{10}\ V_e$

(3) $V_p = \frac{V_e}{\sqrt{10}}$ (4) $V_p = \frac{V_e}{10}$

Q.8 Periodic-time of satellite revolving around the earth is : (ρ is density of earth)

(1) Proportional to $\frac{1}{\rho}$

(2) Proportional to $\frac{1}{\sqrt{\rho}}$

(3) Proportional ρ

(4) does not depend on ρ

Q.9 The mass of earth is 80 times that of moon and its diameter is double that of moon. If the value of acceleration due to gravity on earth is 9.8 m/s^2, then the value of acceleration due to gravity on moon will be

(1) 0.98 ms^{-2} (2) 0.49 ms^{-2}

(3) 9.8 ms^{-2} (4) 4.9 ms^{-2}

Q.10 When a body is orbiting near the surface of the earth, what will be the ratio of its orbital velocity to the escape velocity from earth ?

(1) $1 : \sqrt{2}$ (2) $\sqrt{2} : 1$

(3) 2 : 1 (4) 1 : 2

Q.11 Which statement is correct among the following for gravitational acceleration (g) due to earth ?

(1) The value of g is equal at poles and equatorial circle

(2) The value of g is more at poles than at equatorial circle

(3) The value of g is more at equatorial circle than at poles

(4) None of these

Q.12 The distance between two masses is to be halved. The gravitational force between them will be
(1) double (2) one-fourth
(3) quadruple (4) half

Q.13 The radius of a planet A is twice that of planet B. The average density of the material of planet A is thrice that of planet B. The ratio between the values of acceleration due to gravity on the surface of planet A and that on the surface of planet B is :
(1) $\frac{2}{3}$ (2) $\frac{3}{2}$ (3) $\frac{4}{3}$ (4) 6

Q.14 Two bodies of mass 100 kg and 10^4 kg are lying one meter apart. At what distance from 100 kg body will the intensity of gravitational field be zero :
(1) $\frac{1}{9}$m (2) $\frac{1}{10}$m (3) $\frac{1}{11}$m (4) $\frac{10}{11}$m

Q.15 A missile is launched with a velocity less than the escape velocity. The sum of kinetic energy and potential energy will be :
(1) positive
(2) negative
(3) negative or positive, uncertain
(4) zero

Q.16 A planet is moving in an elliptic orbit. If T, V,E, L stand respectively for its kinetic energy, gravitational potential energy, total energy and magnitude of angular momentum about the centre of force, which of the following statements is correct:
(1) T is conserved
(2) V is always positive
(3) E is always negative
(4) L is conserved but the direction of L changes continuously

Q.17 Two bodies A and B of mass 500g and 200g respectively are dropped near the earth's surface. Let the acceleration of A and B be a_A and a_B respectively, then :
(1) $a_a = a_B$ (2) $a_A > a_B$
(3) $a_A < a_B$ (4) $a_A\ a_B$

Q.18 Two iron and wooden ball identical in size are released from the same height in vaccum. The time taken by them to reach the ground are :
(1) not equal (2) exactly equal
(3) regularly equal (4) zero

Q.19 A heavy stone falls :
(1) faster than a light stone
(2) slower than a light stone
(3) with same acceleration as light stone
(4) none of these

Q.20 The weight of a body is 120 N on the earth. If it is taken to the moon, its weight and mass will be about. (Take $g_e = 10\ m/s^2$) :
(1) 120 N, 120 kg (2) 60 N, 12 kg
(3) 20 N, 12 kg (4) 720 N, 120 kg

CHEMITRY

Q.21 3 containers A,B &C of equal volume contain N_2, NO_2 & CO_2 respectively at the same temperature & Pressure. The ascending order of their masses is :

(1) A, C, B (2) C, A , B
(3) B, C, A (4) C, B, A

Q.22 Number of molecules present in a given amount of CO_2 & O_2 is the same at STP. If the weight of CO_2 is 5.5 g, then the weight of O_2 is :

(1) 5.5 g (2) 4.4 gs (3) 4.0 gs (4) 2.0 gs

Q.23 The mass of one molecule of phosphorous (P 31) is :- [P exists as P_4]

(1) 31 g (2) 5.147×10^{-23} g
(3) 124 g (4) 2.059×10^{-22} g

Q.24 8 gms of oxygen at NTP contains :-

(1) 1.5×10^{23} Molecules
(2) 3×10^{23} Molecules
(3) 6.023×10^{23} Molecules
(4) 1.5×10^{22} Molecules

Q.25 Which list of formulas represents compound only ?

(1) CO_2, H_2O, NH_3 (2) H_2, N_2, O_2
(3) He, Ne, NaCI (4) MgO, NaCI, O_2

Q.26 Which sample at STP has the same number of Molecules as 5 Its of NO_2 (g) at STP.

(1) 5 gms of H_2 (g)
(2) 5 lts of CH_4 (g)
(3) 5 Moles of O_2 (g)
(4) 5×10^{23} Molecules of CO_2 (g)

Q.27 The empirical formula of an organic compound containing carbon and hydrogen is CH_2. The mass of one litre of this organic gas is exactly equal to that of one litre of N_2 at same temperature and pressure. Therefore, the molecular formula of the organic gas is –

(1) C_2H_4 (2) C_3H_6
(3) C_6H_{12} (4) C_4H_8

Q.28 In 5g atom of Ag (at. wt. = 108), calculate the no. of atoms of Ag -

(1) 1 N_A (2) 3N_A (3) 5 N_A (4) 7 N_A

Q.29 Hydrogen combines with chlorine to form HCl. It also combines with sodium to form NaH. If sodium and chlorine also combine with each other, they will do so in the ratio of their masses as:-

(1) 23 : 35.5 (2) 35.5 : 23
(3) 1: 1 (4) 23 : 1

Q.30 Sum of number of protons, electrons and neutrons in 12gm of $_6C^{12}$ is :-

(1) 1.8 (2) 12.044×10^{23}
(3) 1.084×10^{25} (4) 10.84×10^{23}

Q.31 How many carbon atoms are present in 0.35 mol of $C_6H_{12}O_6$ -

(1) 6.023×10^{23} carbon atoms
(2) 1.26×10^{23} carbon atoms
(3) 1.26×10^{24} carbon atoms
(4) 6.023×10^{24} carbon atoms

Q.32 Calculate the mass in gm of $2N_A$ molecules of CO_2 -

(1) 22 gm (2) 44 gm
(3) 88 gm (4) None of these

Q.33 How many molecules are in 5.23 gm of glucose ($C_6H_{12}O_6$) -

(1) 1.65×10^{22} (2) 1.75×10^{22}
(3) 1.75×10^{21} (4) None of these

Q.34 What is the weight of 3.01×10^{23} molecules of ammonia -

(1) 17 gm (2) 8.5 gm
(3) 34 gm (4) None of these

Q.35 How many molecules are present in one mL of water vapours at STP – [d_{H_2O} =1 gm/ml]

(1) 1.69×10^{19} (2) 2.69×10^{-19}
(3) 1.69×10^{-19} (4) 2.69×10^{19}

Q.36 Which of the following compounds has same empirical formula as that of glucose:-

(1) CH_3CHO (2) CH_3COOH
(3) CH_3OH (4) C_2H_6

Q.37 How many years it would take to spend Avogadro's number of rupees at the rate of 1 million rupees in one second -
(1) 19.098×10^{19} years
(2) 19.098 years
(3) 19.098×10^{9} years
(4) None of these

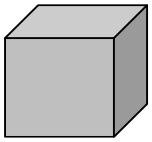
Q.38 An atom of an element weighs 6.644×10^{-23} g. Calculate g atoms of element in 40 kg-
(1) 10 gm atom (2) 100 gm atom
(3) 1000 gm atom (4) 10^4 gm atom

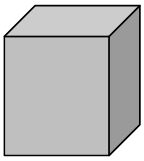
Q.39 Calculate the number of Cl^- and Ca^{+2} ions in 222 g anhydrous $CaCl_2$ -
(1) 2N ions of Ca^{+2}, 4 N ions of Cl^-
(2) 2N ions of Cl^- & 4N ions of Ca^{+2}
(3) 1N ions of Ca^{+2} & 1N ions of Cl^-
(4) None of these

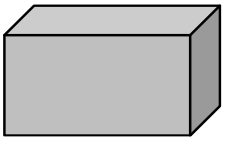
Q.40 Which of the following will weigh maximum amount-
(1) 40 g iron
(2) 1.2 g atom of N
(3) 1×10^{23} atoms of carbon
(4) 1.12 litre of O_2 at STP

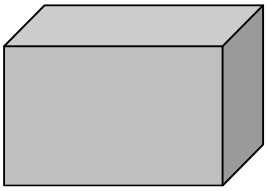
BIOLOGY

Q.41 Various materials are transport into and out of cells by simple diffusion. The rate at which these materials diffuse is related to the surface area to volume ration of the cell. Which of the following cube-shaped cells would be most efficient at removing waste by diffusion?

(1) L = 0.02mm 

(2) L = 0.04 mm 

(3) L = 0.03 mm × W = 0.02 mm 

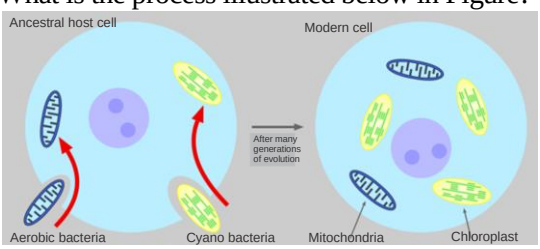
(4) L = 0.06 × W = 0.04 mm 

Q.42 Halobacteria are a type of bacteria that lives in water with high concentrations. Sargassum are brown macroalgae (a type of plant), some of which are known to float freely in the surface waters of the ocean. Which of the following statements **does not** describe a difference between halobacteria and sargassum?
(1) Sargassum are larger than halobacteria.
(2) The cells of sargassum have organelles while the cells of halobacteria do not.
(3) Halobacteria contain chromosomes in a nucleus, sargassum contain chromosomes in a nucleoid region.
(4) Sargassum are multicellular while halobacteria are unicellular.

Q.43 When a physician orders a complete blood count, which of the following is not accounted for in the results?
(1) Erythrocytes (2) Leucocytes
(3) Thrombocytes (4) Endocytes

Q.44 The liver is involved in the detoxification of drugs and poisons. One organelle, in particular, is the main component of detoxification. One of the results of alcohol abuse is an increase of this organelle in the liver cells, as the liver attempts to become more efficient at ridding the body of the poison. This contributes to the increased tolerance of alcoholics. Which organelle in used in detoxification in the liver?
(1) Smooth ER (2) Rough ER
(3) Lysosomes (4) Peroxisomes

Q.45 What is the process illustrated below in Figure?



(1) Endocytosis (2) Endosymbiosis
(3) Exocytosis (4) Phagocytosis

Q.46 Cyanide binds with at least one of the molecules involved in the production of ATP. Following exposure to cyanide, the cyanide would accumulate which part of the cell?
(1) Mitochondria
(2) Ribosomes
(3) Lysosomes
(4) Endoplasmic reticulum

Q.47 Which of the following is **not** an example of an outer plant defense against pathogens?
(1) The thick cuticle of the agave plant.
(2) The waxy coating of magnolia leaves.
(3) Programmed cell death.
(4) Sticky excretions of fruit trees.

Q.48 Fragmentation and budding are two different types of reproduction. Which of the following statements correctly compares the two methods?
(1) Budding requires two organisms while fragmentation requires only one.
(2) In fragmentation, a new organism is created after a piece separates from the parent. In budding, a new organism grows on the parent and then separates.
(3) Fragmentation is asexual while budding is sexual.
(4) Budding only produces haploid cells while fragmentation produces diploid cells.

Q.49 Crossing over is an event during meiosis that dramatically increases variation in offspring. This event occurs between what structures?
(1) Chiasma
(2) Sister chromatids of homologous chromosomes
(3) Nonhomologous chromosomes
(4) Nonsister chromatids of homologous chromosomes

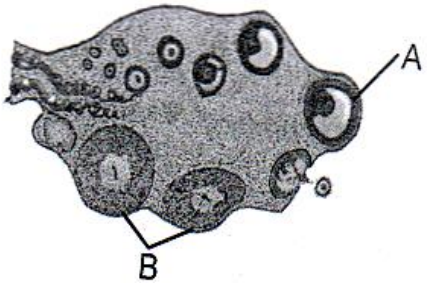
Q.50 Gametes and meiosis are related in the same way as which of the following pairs?
(1) Meiosis : haploid
(2) Chromosomes : alleles
(3) Somatic cells : mitosis
(4) Mitosis ; Binary fission

Q.51 Meiosis is broken down into two separate processes: meiosis I and meiosis II. Which of the following statements **incorrectly** pairs an event that occurs in each process?
(1) Meiosis I : separates homologous chromosomes
(2) Meiosis II : creates haploid cells with duplicated chromosomes
(3) Meiosis I: reductional division
(4) Meiosis II : separates sister chromatids

Q.52 There are a variety of different methods used by organisms to pass on their genes to offspring. Some methods produce genetically identical offspring while others produce unique offspring. Which of the following reproductive methods does not produce clones?
(1) Sexual reproduction
(2) Budding
(3) Binary fission
(4) Fragmentation

Q.53 A sterilisation technique in females which blocks gamete transport and thereby prevent conception is
(1) Vasectomy (2) Copper-T
(3) Tubectomy (4) Condom

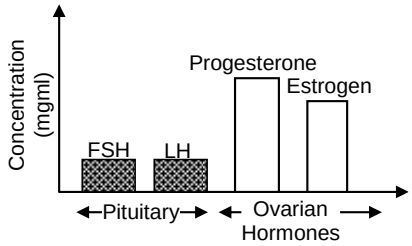
Q.54 The figure shows a section of human ovary. Select the option which gives the correct identification of **A** and **B**.



(1) A – Corpus luteum, B – Graafian follicle
(2) A – Graafian follicle, B – Corpus luteum
(3) A – Primary follicle, B – Corpus luteum
(4) A – Tertiary follicle, B – Graafian follicle

Q.55 Testes descend down the scrotum through
(1) outurator canal
(2) inguinal canal
(3) vertebral canal
(4) vertebra arterial canal

Q.56 The figure below gives the level of ovarian and gondadotropin hormone is a blood sample of a normal health female of 35 years. According to you, which phase of menstrual cycle was she undergoing at the time of blood test?



(1) Menstrual phase
(2) Proliferative phase
(3) Ovulatory phase
(4) Luteal or secretory phase

Q.57 The testes of men lie in a small muscular pouch called scrotum located outside the abdominal cavity; choose the **correct** reason.
(1) Sperm formation in testes requires a higher temperature than the normal body temperature.
(2) Seminal vesicles requires lower temperature to produce nutrients for sperm.
(3) Sperm formation in testes requires a lower temperature than the normal body temperature.
(4) Sperm produced in scrotum is easily released out without going into abdominal cavity.

Q.58 The body of hydra is cut transversely into three pieces and the middle piece is kept upside down on the substratum. Then
(1) it fails to regenerate into an independent hydra.
(2) it would form tentacles and foot in the same locations as oriented.
(3) it would form tentacles and foot at the original upper and lower ends.
(4) it will form a hydra with tentacles at both the ends.

Q.59 Match the following :

Column - I		**Column - II**	
(a)	Gonorrhoea, syphilis,	(i)	IUCD
(b)	Copper - T	(ii)	Saheli
(c)	Non- steroidal pill	(iii)	MTP
(d)	Female foeticides	(iv)	STDs

(1) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
(2) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(3) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(4) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

Q.60 Match the following :

Column - I		**Column - II**	
(a)	Condoms	(i)	Phase in the reproductive cycle of female
(b)	Testes	(ii)	Mechanical barrier
(c)	Menstruation	(iii)	Unisexual plant
(d)	Papaya	(iv)	Bisexual plant
(e)	Hibiscus	(v)	Testosterone

(1) (a)-(ii), (b)-(v), (c)-(i), (d)-(iii), (e)-(iv)
(2) (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii), (e)-(v)
(3) (a)-(iii), (b)-(iv), (c)-(v), (d)-(i), (e)-(ii)
(4) (a)-(v), (b)-(iv), (c)-(iii), (d)-(ii), (e)-(i)

MATHEMATICS

Q.61 At least which number must be subtracted from 9999999 so that it will become the multiple of 125 ?
(1) 124 (2) 4
(3) 24 (4) None of these

Q.62 Out of the following numbers which is divisible by 132 ?
(1) 31218 (2) 78520
(3) 38148 (4) 52020

Q.63 The value of k if k35624 is divisible by 11
(1) 2 (2) 5 (3) 7 (4) 6

Q.64 How many numbers between 1 and 1000 are divisible by 7 ?
(1) 777 (2) 142
(3) 143 (4) None of these

Q.65 How many numbers are there from 100 to 200?
(1) 100 (2) 101
(3) 99 (4) None of these

Q.66 A number which when divided by 32 leaves a remainder of 29. If this number is divided by 8 the remainder will be.
(1) 0 (2) 1 (3) 5 (4) 3

Q.67 The largest possible length of a tape which can measure 525 cm, 1050 cm and 1155 cm length of cloths in a minimum number of attempts without measuring the length of a cloth in a fraction of the tape's length.
(1) 25 (2) 105
(3) 75 (4) None of these

Q.68 Minimum how many similar tiles of square shape are required to furnish the floor of a room with the length of 462 cm and breadth of 360 cm ?
(1) 4600 (2) 4610
(3) 4620 (4) None of these

Q.69 The maximum value of the expression $30-|9x-8|$ is
(1) 30 (2) 28 (3) 29 (4) 27

Q.70 Solution set of the equation $|x-2|=5$ is.
(1) {3, –7} (2) {–3, 7}
(3) {3, 6} (4) None of these

Q.71 The minimum value of the expression $|17x-8|-9$ is
(1) 0 (2) -9
(3) $\frac{8}{17}$ (4) None of these

Q.72 If 2a – 9 = b + a, then the value of $(|a-b|+|b-a|)$ is
(1) 18 (2) 11 (3) 1 (4) 0

Q.73 The value of x for which the value of $|3x+15|$ minimum.
(1) 3 (2) 5
(3) –5 (4) None of these

Q.74 Find the greatest possible number with which when we divide 37 and 58, it leaves the respective remainder of 2 and 3.
(1) 3 (2) 4 (3) 5 (4) 29

Q.75 Find the largest possible number with which when 38, 66, 80 are divided the remainders remains the same.
(1) 14 (2) 28
(3) 7 (4) None of these

Q.76 Find the largest possible number of 4 digits which is exactly divisible by 32, 36, 40
(1) 8638 (2) 8639 (3) 8640 (4) 8641

Q.77 Three bells in the Bhootnath temple toll at the interval of 48, 72 and 108 second individually, if they have tolled all together at 6:00 am, then at what time will they toll together after 6:00 am ?
(1) 6:07:15 AM (2) 6:07:13 AM
(3) 6:07:12 AM (4) 6:07:14 AM

Q.78 The HCF and LCM of the two numbers is 12 and 600 respectively. If one of the number is 24, then the other number will be
(1) 300 (2) 400
(3) 1500 (4) None of these

Q.79 For what value of 'a' 217a93 is divisible by 9
(1) 3 (2) 4 (3) 5 (4) None

Q.80 Which one number is closest to 193 which is divisible by 18 is :
(1) 180 (2) 195 (3) 198 (4) 108

Answer Key																				
Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans.	1	3	3	1	3	1	2	2	2	1	2	3	4	3	2	3	1	2	3	3
Que.	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
Ans.	1	3	2	1	1	2	1	3	1	3	3	3	2	2	4	2	3	3	1	1
Que.	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
Ans.	1	3	4	1	2	1	3	2	4	3	2	1	2	2	2	4	3	3	2	1
Que.	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
Ans.	1	3	4	2	2	3	2	3	1	2	2	1	3	3	1	3	3	1	3	3