

Online Examination During COVID Lockdown Period – Department of Bengali

274 $\frac{28}{100}$ P

ANANDA CHANDRA COLLEGE
(GOVT. SPONSORED)

Exam. No. 9
Subject: Botany (Honours) IV & V
Name: Diana Singh
Class: 2nd year Roll No. 21520134
Section: Day

18.01.19

Group-A

a) Age-pyramid: When different proportion of age group in a population of any species is represented geometrically *graphically* is known as age pyramid. There are three types of age pyramid.

- i) A pyramid with inverted *broad* base.
- ii) A bell-shaped pyramid.
- iii) An urn shaped pyramid.

532 = $\frac{54}{100}$

ANANDA CHANDRA
(GOVT)

Subject: Botany (H)

Name: Sankho Subha Ghosh

Class: 2nd year

Section: Day

9 4th 5th

21720074

18-01-19

Group-B

5/ (a) Mitochondria are filamentous granular cytoplasmic cell organelle which is found in all aerobic cells of higher plants and animals. These are also found in certain micro-organisms including Protozoa and fungi. Mitochondria usually called as the 'Powerhouse' of cell as it is associated with cellular respiration and energy production.

Spherical under a light microscope mitochondria appears as a spherical structure but under light microscope it appears as an envelope structure within which a dense matrix is found. Thus, a typical mitochondria consist of mitochondrial envelope and mitochondrial matrix.

No

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রোল নম্বর, রেজিস্ট্রেশন নম্বর অথবা নাম লুজশীটের মধ্যে লিখিলে, পুরো পরীক্ষা বাতিল হইবে।

Roll - ACC18DSH No. - 0154

Paper -> CC-7 (Genetics)

Dt. - 27/09/2019

3rd Semester, 2019

18/25

15/10/19

Q1. (a) Alleles are the alternative forms of a particular gene with identical phenotypes.

I

Eg:- In monohybrid cross, tallness of the pea plant is expressed by (TT) and (Tt), these are alleles.

Two alleles of a gene are responsible for developing contrasting characters expressed by the gene

(b) Dominant Character ->

In case of a monohybrid cross, between a tall plant (TT) and dwarf plant (tt), the phenotype in F1 generation is tall (Tt), which shows the dominant nature of the gene for tallness. In other words, the character which is expressed in the F1 generation is called Dominant Character.

Eg:- P: TT (Tall) x tt (dwarf)

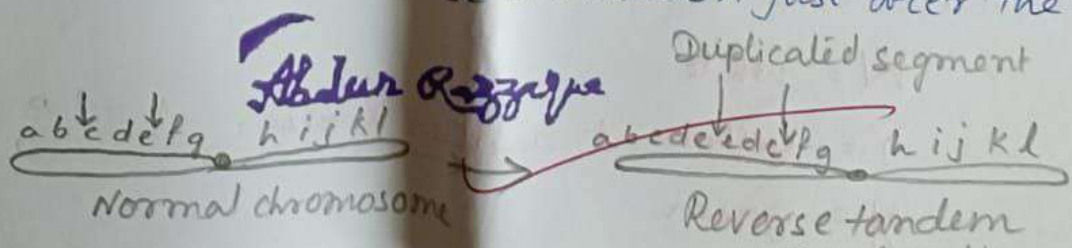
G: T and t

F1: Tt (tall)

(c) Reverse Tandem Duplication:-

It is a type of duplication, where the duplicated segment is attached in a reverse orientation just after the normal sequence.

2



Abdur Razzak

Signature of the Invigilator with date.....



রোল নম্বর, রেজিস্ট্রেশন নম্বর অথবা নাম লুজশীটের মধ্যে লিখিলে, পুরো পরীক্ষা বাতিল হইবে।

Paper - CC-VII ; Sub. - Genetics ; Roll - ACC18DSH0001

Q.1)

(a) Alleles :-

Each character have alternative characters called 'traits'. Such contrasting Pairs of different characters are known as alleles.

$$\frac{12+13}{25}$$

ধর্ম
১৩/১৯

$$= \frac{13}{25}$$

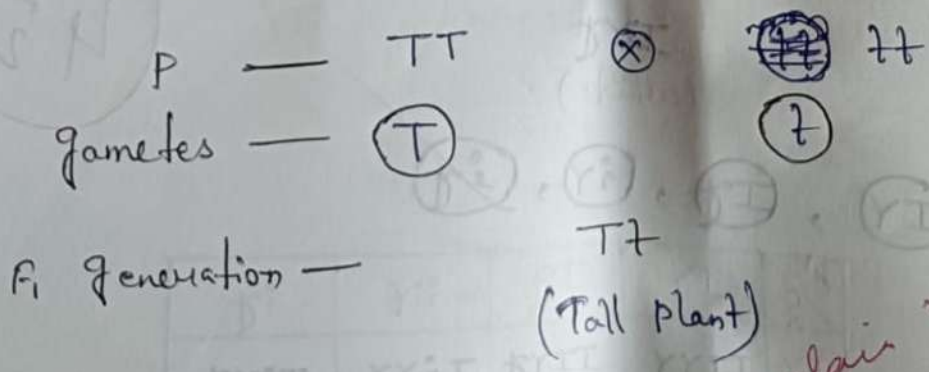
Mendel chose pea plant and the 7 individual characters [for the experiment] for his experiment.

(b) Dominant character :-

When two characters are choosed in F₁ generation, which character is expressed in this generation, is called Dominant character. Because this character is dominant over the another character.

Example -

When we cross a tall (TT) pea plant with a dwarf plant (tt), we get tall plants in the F₁ generation. In the heterozygous form (Tt) the tall character is expressed as the tall character is dominant over the dwarf character.



explain

CLASSMATE
Date _____
Page _____

10
10 Essay 12/3/22

Alternation of Generation in Archegonates

Alternation of generations is a type of life cycle in which subsequent generations of plants alternate between diploid and haploid organisms. Alternation of generation is common in plants, algae and fungi. This can be compared to the sexual reproduction in animals where both haploid and diploid cells are found in every generation. Plants alternate between the diploid sporophyte and haploid gametophyte, and between asexual and sexual reproduction. Thus, the life cycle of plants is known as alternation of generation. This ability of the plants to reproduce sexually and asexually helps them to adapt to different environments. The alternation of generations is very distinct in Archegonates.

Alternation of Generation in Bryophytes :-

- 1) The life cycle of bryophytes shows regular alternation of gametophytic and sporophytic generations.
- 2) The haploid phase is the gametophytic or sexual generation.
- 3) It bears the sexual reproductive organs, which forms gametes, i.e., antherozoids and eggs.
- 4) Gametic union a zygote is formed which develops into a sporophyte ($2n$) diploid phase.
- 5) Sporophyte forms spores, which always germinate to form gametophytes.
- 6) During the formation of spores, the spore mother cells divide meiotically and haploid spores are formed.
- 7) The production of the spores is the beginning of the gametophytic or haploid phase.
- 8) The spores germinate and produce gametophytes, which bear sex organs.
- 9) Ultimately, the gametic union takes place and zygote is resulted. It is diploid ($2n$).
- 10) This is the beginning of the sporophytic (diploid) phase.

8
10 May 12/13/22

UNIVERSITY OF NORTH BENGAL

Ananda Chandra (A.C) College

Jalpaiguri

Semester – II

Assignment

Paper CC-4 (Archegoniate)

College Roll No -21DSH0033

Subject – Botany (Honours)

Registration No – 0192105030779 of 2021-22

SEC

Signature of the invigilator with date.....

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রোল নম্বর, রেজিস্ট্রেশন নম্বর অথবা নাম লুপশীটের মধ্যে লিখিলে, পুরো পরীক্ষা বাতিল হইবে।

0192106032507

Program 4th Sem

Group - B

05/2

Plumy
11/6/23

a) গোষ্ঠীকোষী - ৭টি

ক) গাছের পাতা উদ্ভূতকৃত এনজিমের কার্য
নির্দিষ্ট উৎসের গোষ্ঠীকোষী মার্শ এনজিমের কার্য
উল্লেখ্য - গোষ্ঠীকোষী মার্শ ~~এনজিমের~~ কার্য
সম্পর্কে ও ~~এ~~ ~~সম্পর্কে~~ ~~সংক্রিয়~~ ~~করণ~~,
৫) এনজিমের ~~কার্য~~ ~~নির্দিষ্ট~~ ~~উৎস~~

২) ~~নির্দিষ্ট~~ ~~উৎস~~ ~~এ~~ ~~সম্পর্কে~~ ~~সংক্রিয়~~ ~~করণ~~ ~~এ~~
ক) ~~এ~~ ~~সম্পর্কে~~ ~~উৎস~~ ~~নির্দিষ্ট~~ ~~করণ~~ ~~এ~~
৫) এনজিমের ~~কার্য~~ ~~নির্দিষ্ট~~ ~~উৎস~~

৫) এনজিমের ~~কার্য~~ ~~নির্দিষ্ট~~ ~~উৎস~~
সম্পর্কে ~~উৎস~~ ~~নির্দিষ্ট~~ ~~করণ~~ ~~এ~~

৫) এনজিমের ~~কার্য~~ ~~নির্দিষ্ট~~ ~~উৎস~~
সম্পর্কে ~~উৎস~~ ~~নির্দিষ্ট~~ ~~করণ~~ ~~এ~~

2
10

Internal Examination

UNIVERSITY OF NORTH BENGAL

Accredited by NAAC with Grade A



Name - Rahul Roy



Serial No. U 003370

ENLIGHTENMENT TO PERFECTION

.....Examination, 201.....	
Registration No. 0192105030645	Session
ROLL 21DSM0001	NO.
SUBJECT Chemistry	PAPER GE-3

Signature of the Invigilators
Countersigned Officer-in-Charge of the Centre

Q1) Ans Application of Kohlrausch's law:

1) The theory can be used to calculate the molar conductivity of an electrolyte at the zero concentration.

~~2) Determination of molar conductivity of weak electrolyte at zero concentration.~~

Q2) Ans. As dissociation increases the number of ions increases and hence molar conductivity increases with dilution.

4

Ans. An azeotrope is a liquid mixture that has a constant boiling point and whose vapour has the same composition as the liquid.

1

Example:- Biodegradable waste example: Use Polythene

5

Ans. Mixture of CHCl_3 and CH_3COCH_3 show Negative deviation from

1

Raoult's law.

8

Ans. Epimerization is a chemical process where an epimer is converted to its diastereoisomer counterpart.

1/2

Example: Tetracycline.

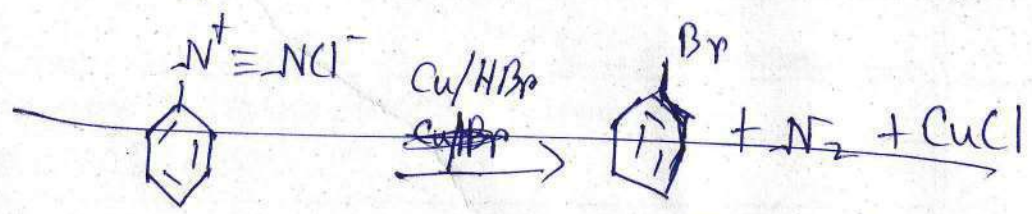
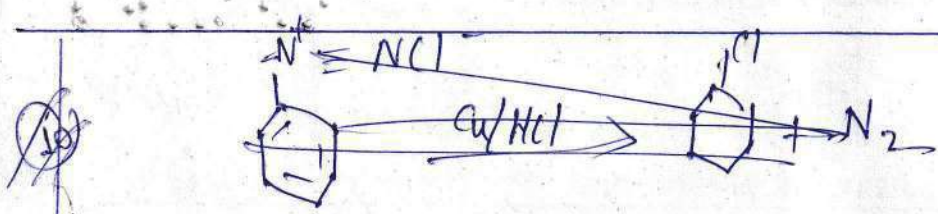
9

(ii)

Zwitter ion: It is an ion possessing

1

both positive and negative electrical charges.



Benzenediazoniumchloride

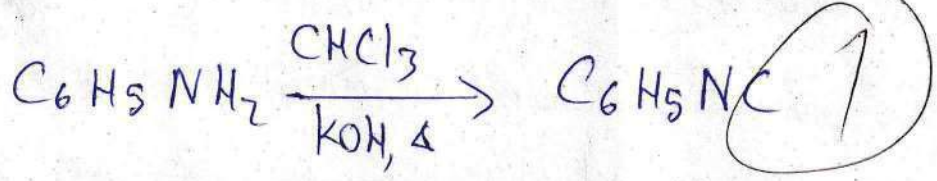
Bromobenzene

③ A₄.

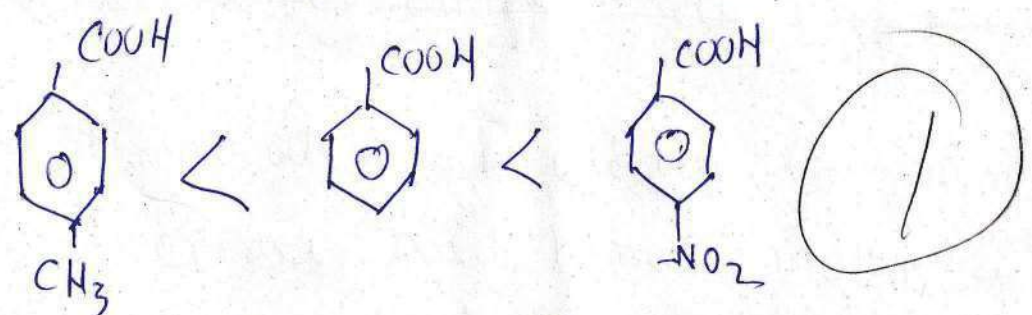
$$\begin{aligned}
 F &= e - p + 2 \\
 &= 1 - 3 + 2 \\
 &= 0
 \end{aligned}$$

(1)

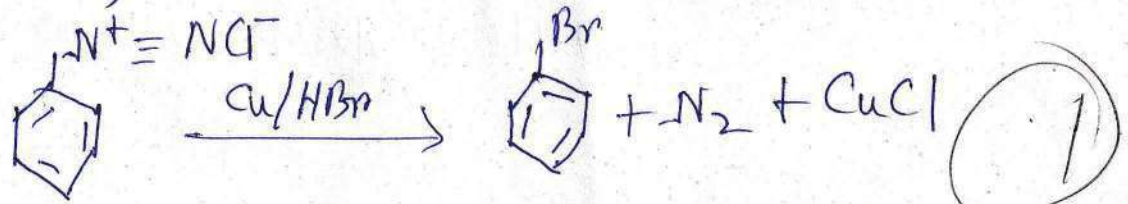
⑥ A₄.



⑦ A₄.



⑩



Benzenediazoniumchloride

Bromobenzene (3)

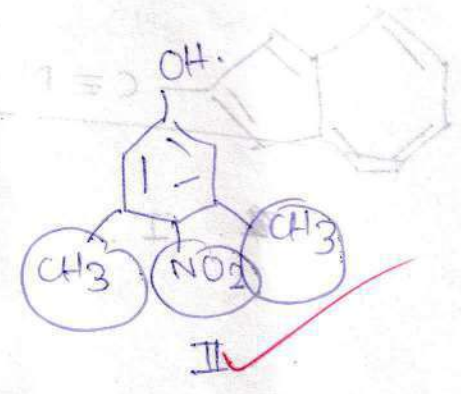
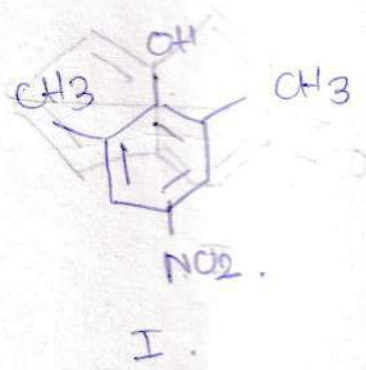
15

ANANDA CHANDRA COLLEGE
 (GOVT. SPONSORED)
 JALPAIGURI
 Examination 2017-18
 Subject: Chemistry (II)
 Name: Arghadi P. Nanda
 Class: 1st year Roll No: 21720151
 Section:

Group - A

Unit - I

1) a) b)



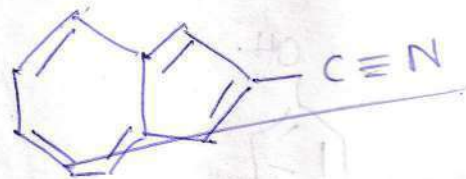
I is more acidic than II due to the following facts. Stronger acid has weaker conjugated base and vice versa. I and II



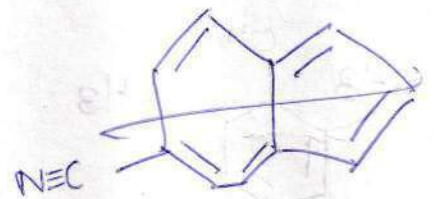
(b) both dissociates proton and form their respective conjugated bases. In case of I, the negative charge is stabilised due to mesomeric effect extended to $-NO_2$ group but in II, due to steric effect of two $-CH_3$ groups, $-NO_2$ group gets out of the plane so in this the mesomeric effect is distributed upto the benzene ring only. So, the conjugated base of I is weaker so I is stronger acid.

(c)

(i)



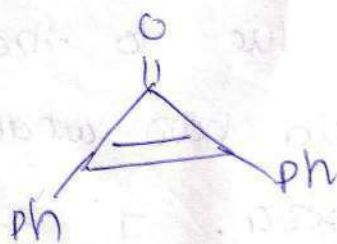
I



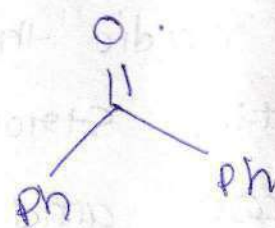
II

(d)

(ii)



I



II

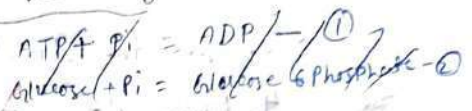
I > II

3. Gibbs free energy: In thermodynamic system or in

a chemical reaction energy always differ ~~the~~ enthalpy and Gibbs free energy divide total number of enthalpy change - total number of entropy change in a certain temperature.

$$\Delta G = \Delta H - T\Delta S$$

4. ~~Coupled reaction~~ Coupled reaction:



In the two reaction

5. Adiabatic wall:

2. Second law of thermodynamics:

In the universe total number of entropy ~~is~~ always increasing.

Mathematical equation:

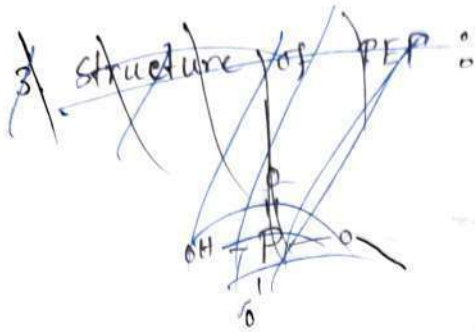
$$G = H - TS$$

Here G is Gibbs free energy, H = Enthalpy and T = Temperature of the system, S = Entropy.

from there ~~the total number~~ Gibbs free energy change

$$\Delta G = \Delta H - T\Delta S$$

Here ΔG° = change of Gibbs free energy, ΔH = Change of enthalpy
 T = Temperature, ΔS = change of Entropy.



6. We know that \rightarrow
 $\sum \Delta G_p^\circ - \sum \Delta G_R^\circ$

$$\therefore \left[-890.3 \times 1000 - 298 \times 213.6 \right] + \left[-890.3 \times 1000 - 298 \times 69.9 \right]$$

$$= \left[-890.3 \times 1000 - 298 \times 186 \right] + \left[-890.3 \times 1000 - 298 \times 205 \right]$$

$$= 826736.6 +$$

1
a

Enthalpy :- Enthalpy is equal to the total energy of a system which means it is the sum of the internal energy and pressure and volume.

$$H = U + PV$$

where H = enthalpy of the system
 U = internal energy
 P = Pressure
 V = volume

b

Entropy :- Entropy is the amount of energy of a system which cannot be used to do work. Entropy can also be defined as amount of disorder in a system. Entropy of a system cannot be ~~measured~~ measured, however changes in entropy can be. It is ~~also~~ defined as (ΔS) .

c

Gibbs free energy :- Gibbs free energy is the total amount of energy inside a system which is available to do work.

$$\Delta G = H - T\Delta S$$

where

ΔG = Gibbs free energy

H = enthalpy of the system

T = temperature

ΔS = change in entropy

4) coupled reactions

In cell the reactions which are thermodynamically favourable and the reactions which are not, happen simultaneously to complete both reactions. Usually the endergonic reactions ~~can't~~ doesn't happen spontaneously, so the exothermic spontaneous reactions produce ~~enough~~ energy coupled with these reactions to provide the needed energy for the endothermic reactions.



5) Adiabatic wall

If a boundary of a system doesn't let energy pass through it, it is called adiabatic wall. E.g. - The boundary of a isolated system is supposed to be an adiabatic wall.

We know,

$$H = U + PV$$

We know,

$$PV = nRT$$

where n = mol number of the gas

So, when $n=1$

$$PV = RT$$

$$H = U + RT \quad \text{when } n=1.$$

$$E_i = 200 \text{ J}$$

$$E_f = 90 \text{ J}$$

180 J heat is added,
70 J work is done

$$E = 200 - (180 + 70) \text{ J}$$

$$= 90 \text{ J}$$

temperature of the system will decrease as the total internal energy of the system is decreased.

G.)

$$\Delta S = \frac{1}{T} (186 + 90.5) + (913.6 + 69.5) \text{ J/kmol}$$

$$= -107.5 \text{ J/kmol}$$

$$\therefore \Delta G = \Delta H - T\Delta S$$

~~$$= -890300 + 273 \times 107.5$$~~

$$= -890300 + \{(273 + 25) \times 107.5\} \text{ J/kmol}$$

~~$$= -929335 \text{ J/kmol}$$~~

~~$$= -929.335 \text{ kJ/kmol}$$~~

$$= -890300 + 32035 \text{ J/kmol}$$

$$= -858265 \text{ J/kmol}$$

$$= -858.265 \text{ kJ/kmol}$$

$\Delta G < 0$ at room temperature

So, the reaction will be spontaneous.

$$E_i = 200$$

$$Q = 180 \text{ J}$$

$$W = 70 \text{ J}$$

$$E_f = 180 - 70 \\ = 110 \text{ J}$$

$$\therefore E_u = 110 - 200 \\ = -90 \text{ J}$$

the temperature of system will decrease as the internal energy has decreased.

second law of thermodynamics:

The second law of thermodynamics states that if low energy enters or leaves a system, the potential energy of the system always decreases.

The disorderness of the system which is defined as entropy, always increases in case of a spontaneous ~~history~~ reaction. In case of a reversible reaction entropy ~~is~~ doesn't change.

Entropy in case of irreversible always increases. Endergonic reaction

however seems to be decreased entropy.

But the entropy of the ultimate isolated system or universe is always increasing. When a endergonic reaction

decreases the entropy of a system, the opposite reaction always appears in surroundings. That's how the

entropy of the universe is always ~~constant~~ increasing.

$$\Delta S_{\text{universe}} = (\Delta S_{\text{system}} + \Delta S_{\text{surrounding}})$$

$\Delta S =$ change in entropy.

NAME - Praunjal Mirra.

1.

a. In meiosis, prophase I phase

a. In zygotene step of prophase I
- some are attached each other, complex that is called synaptonemal complex

homologous chromosomes make a synaptonemal complex.



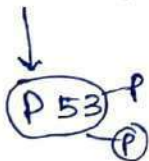
b. Caspase are a group of enzyme that are degraded in they are degraded in apoptosis pathway. present ① ~~initiation caspase~~
② execution caspase

of enzyme that nature, means protein in the two types are initiation caspase (procaspase 8,9) (procaspase - 3, 6, 7)

C.

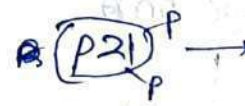
Damage DNA

↓
chk1/chk2



If repair is not possible

Apoptosis.



chk1/cyclin
cell cycle arrest

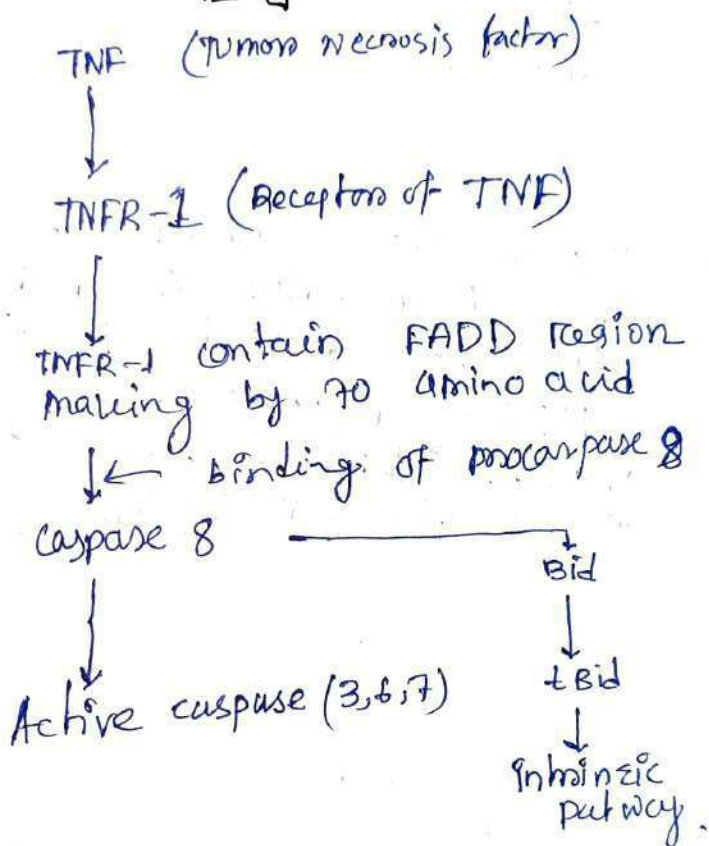
If DNA repairing possible

DNA repairing

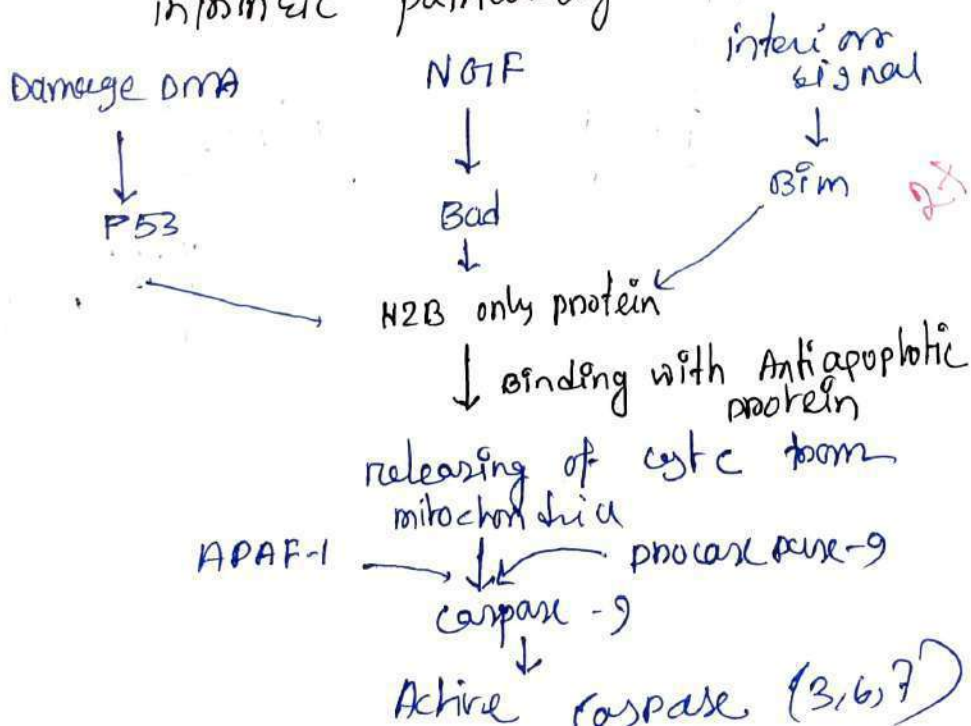
1/2

f. microtubule are help in spindle formation
 transport of motor protein
 dynein, kinesin, help in vesicular transport.

2. Extrinsic pathway

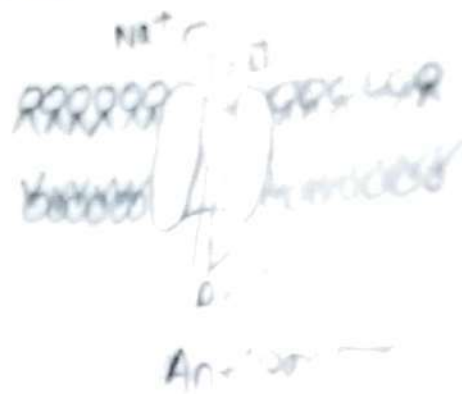
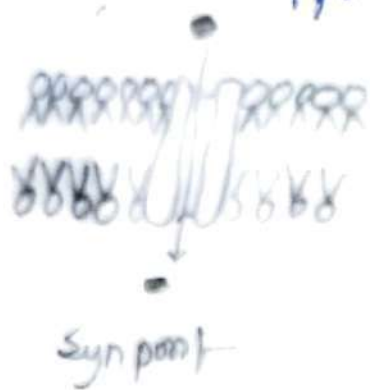


intrinsic pathway



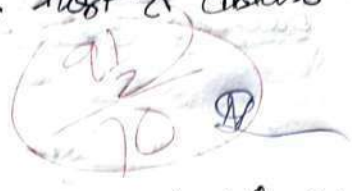
3. Symport: Transport of molecule in same direction. Ex: Na^+ & glucose

Antiport: Transport of molecule in opposite direction. Ex: Na^+ & K^+



Dipa Ghosh

- 1) Write down the classification of bacteriophage. 4
- 2) write down the full name, host & disease of TMV, CM, BMV. 3
- 3) Define virus. 1
- 4) write down the properties of virus. 2.



Answer:-

1) Classification of bacteriophage based on genetic material —
 B. bacteriophage may have single or double stranded genetic material (DNA or RNA).
 It is as follows —

i) ss DNA phages —

ii) Icosahedral — ~~for example E~~ For example $\phi \times 174$, U_3 , G_1 series (such as G_A, G_6, G_{13} , G_{16})
 (G_4, G_7, G_{13}, G_{16})

iii) Helical — The ϕ group; ϕ specific phages that absorb at the tip of sex pills.
 eg $\rightarrow \phi_d, \phi_l, M13$

ii) ds DNA Phages —

They contain Double stranded DNA as genetic material.

i) T even phage — for example T_2, T_4, T_6

ii) T odd phage — For example T_1, T_3, T_5, T_7

- iii) The other E. coli phages — P1, P2, ϕ
- iv) The Bacillus subtilis phages — PBSX, PBS2, PBS1
- v) The Salmonella sp. phages — P1, P22
- vi) The Shigella sp. phages — P2
- vii) The Haemophilus ~~ph~~ sp. phages — HP1
- viii) The Pseudomonas sp. phages — PM2

3) Single stranded RNA Phages —

- i) group I — E. coli phages MS2, F2
- ii) group II — the BB phages

4) Double stranded RNA phages — including $\phi 6$ phages.

Morphologically —

Phageviruses are observed under electron microscope. The main component of ^{phage} virus is nucleic acid code surround by capsid which is ~~that~~ made up of capsomers. Capsomers contains protein subunit called "Protoomers". It is as follows —

- i) Type A — This type of phages contain ~~that~~ hexagonal head, rigid tail & tail fibers.
eg \rightarrow T₂, T₄, T₆

ii) Type B - This type of phages contain hexagonal head but lacks a flexible tail, but lacks of tail fit contractile sheath. May or may not have tail fibers.

e.g - DS DNA phages, T₁, T₅

iii) Type C - This type of phages contain hexagonal head, tail is shorter than head. May or may not have tail fibers.

e.g - DS DNA phages T₃, T₇

iv) Type D - Hexagonal head made up of small capsomers, lacks of tails.

e.g - SS DNA phages φX174

v) Type E - Hexagonal head made up of capsomers, lacks of tail.

e.g - Single stranded RNA phages ~~M~~ MS2, F2

vi) Type F - Filamentous phages, F specific phages. e.g → φd, φl

vii) Type G - Head contains lipid envelope but lack of capsid. e.g → MV-L1, MV-L2

XX

3/10

2) Virus	Full Name	Host	Disease
TMV	Tobacco mosaic virus	Tobacco Plant	Necrosis of leaves & stem.
C.MV	Cucumber mosaic virus	Cucumber plant	Brown & white spot on fruit.
BMV	Barley stripe mosaic virus	Barley plant	long patches on leaves & stem which is about 10-12m

3) Virus — Viruses are submicroscopic, small, acellular entities that range in size ^{from} 20-300nm. They need a living cell in order to replicate, & lack of metabolism outside a host cell.
eg → Influenza virus (V)

4) Properties —

All living & non living particles have their properties, viruses also possess some properties in order to multiply. It is as follows —

i) Acellular → Viruses are acellular entities, they need a host cell to multiply. Viruses are regarded as in between of living & death. In host cell they can multiply as living particle, outside the host cell it acts as

dead particle.

Simple structure — Viruses are very simple in structure. Their head contain single or double stranded genome surrounded by a protein coat capsid. In this respect they differ from other typical structures made up of carbohydrates, lipids, nucleic acid etc.

Thermal death point — It is a constant temperature in which the extract of virus fully inactivated when it exposed for a period of minute. It differs viruses to viruses.

Nucleic acid — Viruses may have single or ~~text~~ double stranded DNA or RNA.

Reception Rous sarcoma virus contain both DNA or RNA & cause sudden cancer.

~~the~~

2

- Q1. Write down the classification of Bacteriophage. 1
- Q2. Write down the full name. Host & disease of TMV, CMV, BMV. 3
- Q3. Define virus. 1
- Q4. Write down the properties of viruses. 2

1. Based on the nucleic acid, the classification of phage follows as →

- (i) The ss DNA phage :-
 - (i) Icosahedral :- ϕ X174, ϕ 3, ϕ series (G1-3, G4-13, G1-16, G1-6)
 - (ii) Helical :- ϕ group (f1, fd)

- (ii) The DS DNA phage :-
 - (i) The T-even phage :- T2, T4, T6
 - (ii) The Todd phage :- T1, T3, T5, T7
 - (iii) The other E. coli phage :- P1, P2, M13
 - (iv) The ~~virus~~ phage of bacillus subtilis :- PBSX, P, PBST, PBS2
 - (v) The phage of salmonella :- P1, P22
 - (vi) The phage of shigella :- P2
 - (vii) The phage of Haemophilus :- HP1
 - (viii) The phage of ~~sa~~pseudomonas :- PM1

- (iii) The ss RNA phage :-
 - (i) Group 1 :- F1, F2
 - (ii) Group 2 :- QB phage.
- (iv) The DS^{RNA} phage :- ϕ 6 phages.

A Based on Morphology :-

Type A :- This type of virus has hexagonal head, rigid tail and tail fibers.
ex :- T-even phage (T2, T4, T6)

Type B :- This type of virus has hexagonal head but lacks tail fibers and may or may't have the tail fiber.
ex :- T1, T5

Type C:- This type of phage has the long tail region. Head and tail sheath is thin. It has the tail fibers. It lacks contractile sheath.
Ex:- T3, T7

Type D:- This type of viruses has head composed of capsomeres. lacks tail.
Ex:- The MS DNA phage ϕ X174.

Type E:- This type of viruses have head composed of short capsomeres.
Ex \rightarrow M13, ϕ 1

Type F:- The F is filamentous phage.
Ex \rightarrow ϕ H, ϕ 2

Type G:- Ex \rightarrow G16, G13

2. TMV \rightarrow Tobacco Mosaic virus \rightarrow Tobacco plant \rightarrow leaf
Mosaic disease + tobacco plant

EMV \rightarrow ~~Cucumber~~ Cucumber Mosaic virus \rightarrow Cucumber plant \rightarrow white and brown spots

BMV \rightarrow Barley stripe Mosaic virus \rightarrow Barley plant \rightarrow long of brown patch upto 10-15 cm.

3. viruses:- Viruses are small infectious agent, smaller than bacteria. They can infect all type of life from animal to animal, plant microorganisms like bacteria.

Ex \rightarrow TMV (Tobacco Mosaic virus) \rightarrow plant
Influenza virus

Q4. Properties of viruses :-

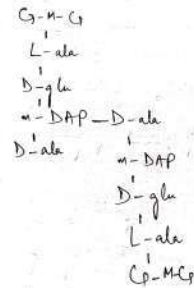
Viruses are much smaller than bacteria. Their range is size in 40-300 nm. Their properties are as follows →

- (i) Acellular :- Viruses are acellular. ^(crystals) They consist as between in living and non-living particles. In infectious cells, they act like living organisms. and out of the cells they act like dead particles.
- (ii) Nucleus Nucleic acid :- Viruses have only one kind of Nucleic acid either DNA or RNA. Rotas Serenma virus produce cancer that have the two Nucleic acid, DNA and RNA.
- (iii) Dilution of activation :- This is the degree of dilution of virus extract that can inactivated in the of the viruses. The dilution of virus of -
+MV $1:10^6$, CMV $1:10^3$.
- (iv) Host specificity :- Viruses have host specificity that observed by the virologist, the kind of viruses, that give them same host and produce same type of disease.
- (v) Motility :- They are non-motile. They are attached to host ~~by~~ cells by surface interactions.
- (vi) No independent metabolism :- Viruses are non metabolic organisms. In the cells, they are behave like a living organisms, and out side of cells they are metabolically inactivated.
- (vii) Longivity in vitro :- This is the number of hours or days, the extract of viruses are activated in a room temperature.

- 20/11
- 1) Draw the direct and indirect interbridge of bacterial cell wall? (3)
- 2) Write down the composition of peptidoglycan (2)
- 3) Name two unusual sugars found in outer membrane why are they unusual? (2)
- 4) Name two bacteria that form endospores and the associated disease. (2)
- 5) What are pores? Give examples. (2)
- 6) Why is Mycoplasma pneumoniae sensitive? (2)
- 7) Define PMF. (2)
- 8) What is Arc system? (2)
- 9) What do you understand by pleomorphism. Give eg. (2)
- 10) What are spheroplast and L-form? (2)
- 11) What are counterions? What is its function? (2)
- 12) What are the roles of capsule? (2)
- 13) Give two examples of fatty acid found in Lipid A. (2)

- 14) Differentiate bacteria and archaea. (2)
- 15) Suppose you are given a milk sample and is told to isolate a gram positive bacteria and store it. Draw a flow chart. (5)

Ans:



cell form

Fig: Direct interbridge in case of Gram negative bacteria.

~~The two unusual sugars found in outer membrane are~~

ABC system may be defined as the transport system which is present in bacteria. In this system, the complex of proteins binding protein along with the membrane bound ATP and ATP hydrolyzing protein which is known as the ABC transport system. The ABC transport system exists due to the uptake of organic compounds like sugar, amino acids and inorganic compounds like phosphate, sulphate and trace metals.

Pleomorphism may be defined as the ability of the bacteria to change their shape and size. For example - *Mycobacterium tuberculosis*, *Helicobacter pylori*.

Spheroplasts are referred to as the ultimate form of plant, bacterial or fungal cells from which the cell wall has been partially or completely removed. They have all the cellular components except the cell wall. Spheroplast can form when a bacterial cell wall is attacked by an antibiotic and they become cell wall less. It is seen on gram negative bacteria.

Both protoplasts and spheroplasts can also occur naturally, in that case they are referred to as X-form. X-form may be defined as the short phase and cell wall less form of bacteria. For eg. the species of *Pseudomonas*, *Staphylococcus*, *Vibrio*, etc.

Carotenoid is a pigment which is present in animals and plants. Carotenoid has two types - Carotene and xanthophyll. The function of carotenoid is to block the light in bacteriochlorophyll and prevent photo damage.

The roles of capsule are -

- (a) Adhesion of cells to the surface.
- (b) Used in biofilm production like dental plaque.
- (c) They are hygroscopic, i.e. they prevent dehydration.
- (d) Prevent the cells from engulfment by the immune cell.

The two examples of fatty acid are -

- (a) Palmitic acid.
- (b) Stearic acid.

Gram	Anaerobe
<p>They contain peptidoglycan which has also teichoic acid.</p> <p>① Reaction with N-acetylglucosamine and N-acetylmuramic acid.</p> <p>② NAGs and NAMs are connected by β-1,4 glycosidic bond.</p> <p>③ The lipids of bacteria are have an ether linkage.</p>	<p>They contain pseudomurein.</p> <p>① They contain N-acetylglucosamine and N-acetyltalosaminuronic acid.</p> <p>② NAGs and NALs are connected by β-1,3 glycosidic bond.</p> <p>③ The lipids of anaerobe have an ester linkage.</p>

Ans: The flow chart of is as follows of \rightarrow to right a gram positive bacteria given with sample \rightarrow Serial dilution is performed with the with sample.

↓

The sample is collected

↓

(explain) \rightarrow Serial dilution is performed

↓

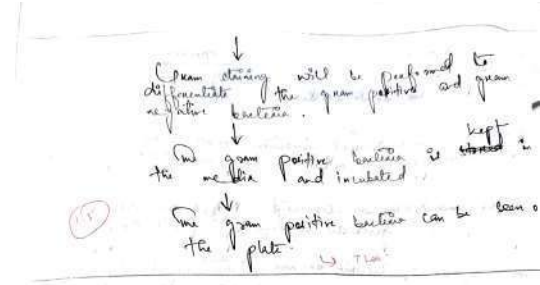
Bacterial colony is done

↓

The plate is incubated

↓

Bacterial colony will be formed



13

Name - Arya Das
clg Roll no. - 20DSH0155 (Physic Honours)
Reg no. - 0192005030605
SEC2 - Renewable Energy. (Physics)

① Capacity factor :- The ratio of the electrical energy produced by a generating unit for the period of time ~~considered~~ ^{considered} to the electrical energy that could have been produced at continuous full power operation during same period of time.

② Non-renewable energy sources: There are four major types of non-renewable sources:

- (i) Natural gas
- (ii) Coal
- (iii) Nuclear energy
- (iv) Oil

Renewable energy sources :-

list of renewable energy source are

- (i) solar energy
- (ii) wind energy
- (iii) falling water

more

■ Merit of renewable energy

- (i) It has numerous benefits in environment.
- (ii) It won't run out and has lower maintenance requirement.

■ Demerit of renewable energy:

- (i) It has limited storage capability.

13

Name - Subhasish Biswas.

17
20

Class Test - 1

Semester - 3, 2019

F.M-20
Time - 1 hour

Mathematical Physics - II (Fourier series)

1)

$$f(x) = \begin{cases} 0, & -\pi < x < 0 \\ h, & 0 < x < \pi \end{cases}$$

2) Let the fourier expansion be,

$$f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos nx + \sum_{n=1}^{\infty} b_n \sin nx$$

(where, a_0, a_n and b_n is fourier co-efficient)

$$\therefore a_0 = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) dx$$

$$= \frac{1}{\pi} \left[\int_{-\pi}^0 0 dx + \int_0^{\pi} h dx \right]$$

$$= \frac{1}{\pi} \left[h x \right]_0^{\pi}$$

$$= h$$

15

Now, $a_n = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) \cos nx dx$

$$= \frac{1}{\pi} \int_{-\pi}^0 0 \cdot \cos nx dx + \frac{1}{\pi} \int_0^{\pi} h \cos nx dx$$

Internal Assessment

ANANDA CHANDRA COLLEGE
(GOVT. AIDED)
JALPAIGURI

Exam No. EC-10 Paper 19
Subject History
Name Olivia Ghosh
Class 10 Roll No. 10101
Section 1
Registration No. 10101

12/05/23

Various articles on education in Indian Constitution

Secondary Education Commission of India appointed

1952 27th September
Secondary Education Commission

Aim of Secondary Education Commission:

to study the present state of secondary education in India and to recommend measures for its improvement.

1952-53

to study the present state of secondary education in India and to recommend measures for its improvement.

to study the present state of secondary education in India and to recommend measures for its improvement.



Department of Education

Internal Assessment, 2022

Name - Hriday Roy

Paper - CC-13

Paper - CC-14

Title - Curriculum Studies.

Title - Educational Research.

Sem - 6th

Regn No- 0191905010526

Date of Exam- 03-06-2022

CC-13 - 07
CC-14 - 07

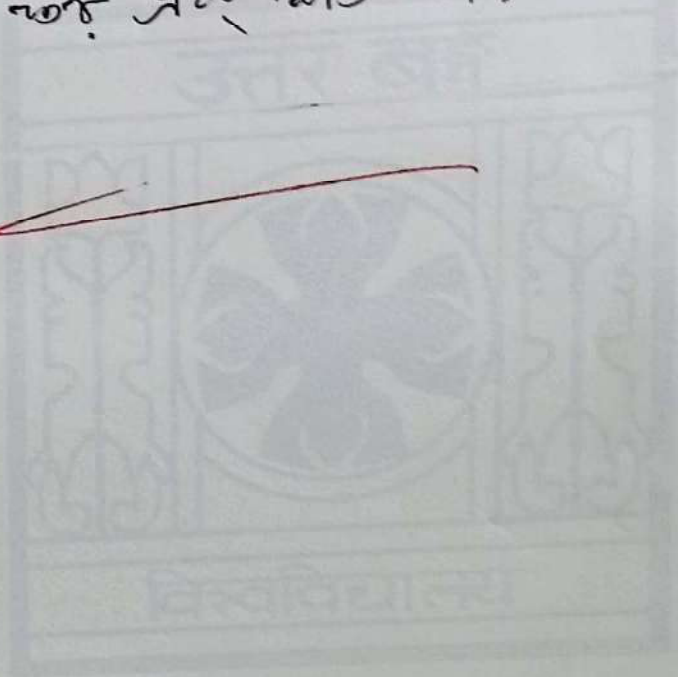
Q. Experimental Research:

ଆନୁଭବିକ ଡାକ୍ତରୀ ଓ -ବିଶ୍ୱକୃଷିକ ଡାକ୍ତରୀ ।
ନୀତିନିୟମିତ ପରୀକ୍ଷା ଦ୍ୱାରା

J.W. Best ଉଲ୍ଲେଖ

ଆନୁଭବିକ ଡାକ୍ତରୀ - ବିଭିନ୍ନ କାର୍ତ୍ତବ୍ୟକ୍ରିୟା କାର୍ତ୍ତବ୍ୟକ୍ରିୟା ଦ୍ୱାରା
ନୀତିନିୟମିତ ପରୀକ୍ଷା ଦ୍ୱାରା
ଆନୁଭବିକ ଡାକ୍ତରୀ ଏବଂ କାର୍ତ୍ତବ୍ୟକ୍ରିୟା ଦ୍ୱାରା
କାର୍ତ୍ତବ୍ୟକ୍ରିୟା ଦ୍ୱାରା

37



Digital Electronics

Full Marks - 10

Answer all questions

Full Time - 30 minutes

Name NAYAN DAS

Roll No 23DSM0090

8
10

Answer

1. Which of the following is the decimal equivalent of the given binary number?
 $(101111.1101)_2 = (?)_{10}$

(a) 47.8125 (b) 49.8365 (c) 45.8825 (d) 43.6625

~~Ⓐ 47.8125 +2~~

2. Which of the following is the octal equivalent of the given hexadecimal number?
 $(A6F.CD)_{16} = (?)_8$

(a) 5152.632 (b) 5157.642 (c) 5157.632 (d) 5255.675

~~Ⓒ 5157.632 +2~~

3. Which of the following is the simplified expression of the given expression?

$$Y = \overline{(AB + \bar{C})(\bar{A} + \bar{B} + C)}$$

(a) $(\bar{A} + \bar{B} + \bar{C})(A + B + C)$ (b) $(\bar{A} + \bar{B} + \bar{C}) + (A + B + C)$ (c) $(\bar{A} + \bar{B} + \bar{C})$ (d) $(A + B + C)$

~~Ⓐ $(A+B+C)$~~

4. A product term containing all the variables of the function in either complimented or uncomplimented form is called _____.

(a) AND term (b) OR term (c) Maxterm (d) Minterm

~~Ⓓ Minterm +2~~

5. Which boolean property is represented by the given equations

$$A + B = B + A$$
$$A \cdot B = B \cdot A$$

(a) Associative Property (b) Commutative Property (c) Distributive Property (d) None of the above

~~Ⓑ commutative Property +2~~

Full Marks 10

Full Time 10minutes

Name Bishal Roy

Roll 21DSH0115

SEM V(H)

Paper Internet Technologies

80
10

Answer all ten questions

Answer

- Which keyword of javascript is used to declare a variable
a. def b. let c. Int d. Floor
- _____ is a special value which represents "nothing", "empty" or "value unknown" in javascript.
a. null b. void c. NaN d. undefined
- Which data type of javascript can safely represent integer values larger than $(2^{53}-1)$ (that's 9007199254740991), or less than $-(2^{53}-1)$ for negatives.
a. BigInt b. Number c. BigNumber d. None
- Which operator can convert string to number ?
a. + b. * c. - d. None
- Which HTTP status code represents that the "Requested page cannot be found"
a. 404 b. 200 c. 100 d. 304
- Which HTTP method is used to request to read a web page ?
a. PUT b. POST c. GET d. DELETE
- Which type of HTTP status code represents server error ?
a. 1xx b. 2xx c. 5xx d. 4xx
- Which object hold data retrieved from a database after you execute an SQL query using JDBC
a. Connection b. Statement c. Driver d. ResultSet
- _____ method of Arrays class Finds and returns the index of the first unmatched element between the two specified arrays.
a. Equals() b. compare() c. mismatch() d. deepEquals()
- In which type of event propagation the inner most element's event is handled first and then the outer ?
a. Bubbling b. Capturing c. Both a and b d. None

b.
a.
a.
a.
a.
c.
d.
d.
b.
a.

Full Marks 10

Name

Subhankar Sarkar

Roll

Full Time 10minutes

21DSH0275

SEM

V(H)

Paper

Internet Technologies

Answer all ten questions

Answer

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b.

a.

a.

d.

a.

c.

e.

d.

c.

d.

8/10