X – HALF YEARLY EXAM. SCIENCE – KEY -2015 JAN.
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S.M.H.H.S.S. - SIRKALI. NAGAI DT.

SECTION - I

1.Beta
2.Entamoeba histolytica
3. Thymus
4. Aggregte fruit-polyalthia
5. Pulmonary vein
6. Pseudopodia
7. Coal
8. Typhoid
9. 25%
10. Magnesium hydroxide
11. Zinc
12. CH_3COOH
13. 4K
14. Black
15.Behind the mirror

SECTION - II

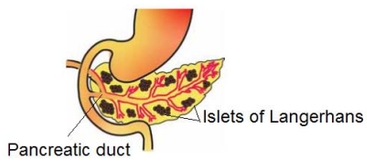
16) **a)** Somatic variation pertains to body cells and it is **not** inherited.
b) The genotype of a character is influenced by factors called **genes.**

17) Charles Darwin. Two principles: 1) Struggle for existence 2) Survival of the fittest.

18) Charles Darwin – Earthworm
Lamarck - Giraffes
Ian Wilmut - Finn Dorest
Edward Jenner - Virus.

19) 1. ELISA 2. Western blot

20)



21) Some fruits develop without the act of fertilization.Ex. Seedless grapes, guava,mango

22) **a)** Nephron **b)** Kidney → Ureter → Urinary bladder → Urethra

23) i) Doubly thick skin. ii) Water-storing osmotic cells.
iii) Thick bushy eyebrows . iv) Nostrils can be closed during desert storms.

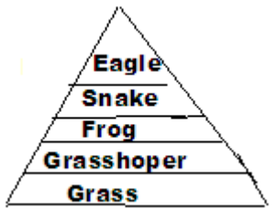
24) a) Mountain goat b) Dog

25) 1) Glycolysis 2) Oxidative decarboxylation of pyruvic acid
3) Kreb's cycle 4) Electron transport chain

26)

Autotrophs	Chlorophyll	Hibiscus
Parasites	Haustoria	Cuscutta
Saprophytes	Mycorrhiza	Monotropa

27)



28) a) Solar (light), electrical b) non – conventional energy

29) a) petroleum b) scabies

30) a) Bio- diesel **is made from vegetable oil and animal fats.**
b) **Methene** is the chief component of natural gas.

31) At a given temperature the mass of gas dissolved in a fixed volume of liquid is directly proportional to the pressure of the gas on the surface of the liquid.

32) a) Beaker B b) Suspension

33) a) Atomicity b) Vapour density

34) (A) correct but ® is incorrect

35) a) Malic acid b) Organic acid

36) a) Mg b) Slag

37) In diamond each carbon atom is bonded to four other carbon atoms forming a rigid three dimensional structure accounting for its hardness.

38) 1) Newton's third law of motion. 2) The law of conservation of momentum.

39) F = ma 65 x 0.3 = 19.5N

40) $P = I^2 R$ Power is directly proportional to the resistance therefore the resistance of 40W is more than the resistance of 60W. In series connection the current is same in both the bulbs. Higher resistance bulb will glow brighter.

41) Lead and tin, low melting point

42) Current - Ampere
Radiation - Roentgen
Resistance - Ohm
Charge - Coloumb

43) By replacing the slip rings by a split ring type commutator.

44) a) The magnetic field is a quantity that has **both magnitude and direction.**
b) Outside the bar magnet, the magnetic field lines emerge from the **north pole** and merge at the **south pole.**

45) No. Magnetic monopole does not exist.
A magnet is made up of large no. of molecular magnets.
Even if a magnet is broken each piece behaves as a complete magnet.

SECTION – III

PART –I

46) Protein deficiency diseases and symptoms - 2 marks
Vitamin deficiency diseases and symptoms - 3 marks

47) Fore brain – Cerebrum, thalamus, hypothalamus - functions - 2 marks
Mid brain - corpora quadrigemina - function – 1 mark
Hind brain - Pons, cerebellum, medulla oblongata – functions – 2 marks

PART –II

48) Monocot seed – diagram with parts – 2 marks
Structure - 3 marks

49) Any five measures - 5 marks

PART –III

50) a) 3 moles of ammonia
b) 53.5 x 1 = 53.5g
c) NH_3 (ammonia)
d) $NH_3 + HCl \longrightarrow NH_4Cl$

51) **To find compound A** :
Reaction of ethanol with sodium metal: $2C_2H_5OH + 2Na \longrightarrow 2C_2H_5ONa + H_2$
To find compound B: $2C_2H_5OH + OH\text{-}C_2H_5 \longrightarrow 2C_2H_5\text{-}O\text{-}C_2H_5 + H_2O$
To find compound C: $CH_3CH_2OH \longrightarrow CH_2 = CH_2 + H_2O$

Compound	Name	Molecular formula
A	Ethanol	C_2H_5OH
B	Diethyl ether	$C_2H_5\text{-}O\text{-}C_2H_5$
C	Ethene	$CH_2 = CH_2$

PART –IV

52) a) effect of long-space flight of the human body **---- 3 marks**

b) Acceleration due to gravity $g = \frac{GM}{R^2}$

$g_1 : g_2 = 1 : 4 \quad R_1 : R_2 = 1 : 3$

$g_1 = \frac{GM_1}{R_1^2}$; $g_2 = \frac{GM_2}{R_2^2}$; $M_1 = \frac{g_1 R_1^2}{G}$: $M_2 = \frac{g_2 R_2^2}{G}$

$\frac{M_1}{M_2} = \frac{\frac{g_1 R_1^2}{G}}{\frac{g_2 R_2^2}{G}} = \frac{g_1 R_1^2}{g_2 R_2^2} = \frac{1}{4} \times \left(\frac{1}{3}\right)^2 = \frac{1}{4} \times \frac{1}{9} = \frac{1}{36}$

Ratio of their masses = 1 : 36 ..... **2 marks**

53) R = -30cm h = 5cm u = -10cn
Radius of curvature = 2 x focal length; f = R / 2 ;- 30 / 2 = -15

Mirror formula $= \frac{1}{f} = \frac{1}{v} + \frac{1}{u}$

$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$; $\frac{1}{v} = \frac{1}{-15} + \frac{1}{10}$;

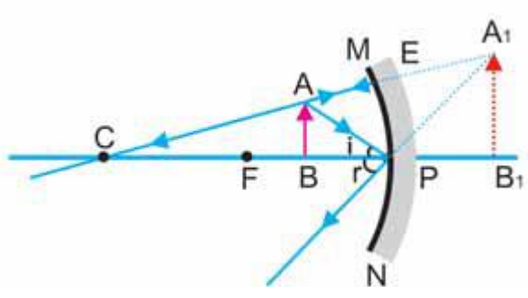
$\frac{1}{v} = \frac{1}{-15} + \frac{1}{10}; = \frac{-2+3}{30} = \frac{1}{30}$

$\frac{1}{v} = \frac{1}{30}$

V = 30cm

Magnification: m = -v/u also m = h_2 / h_1 h_2 / h_1 = -v/u h_2 = 15cm

i) Find the nature, position and size of the image.

Position of the image	Nature of the image	Size of the image
Behind the mirror (between F and O)	Virtual and erect	Enlarged

ii) Draw the ray diagram to represent the above case.