G.T.N.ARTS COLLEGE

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(A Linguistic Minority Institution

n Autonomous Institution Affiliated to Madurai Kamaraj University

Accredited with 'B' Grade by NAAC)

EPARTMENT OF CHEMISTRY

END SEMESTER QUESTIONS

(ODD)

(2017 - 2018)

Reg. No: | | | | | | | | | | |

G.T.N. ARTS COLLEGE (AUTONOMOUS)

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc., Chemistry** Date : **08.11.2017**
Paper Code : **17UCHC11** Time : **10:00 am to 01:00 pm**
Title of the Paper : **Inorganic Chemistry - I** Max Marks : **75**

Section – A **[10 X 1 = 10]**
[Answer ALL the Questions]

1. In laboratory, acid solutions are stored in _____ rack

[a] Top [b] middle [c] bottom [d] All of these

2._____ is a confirmative test for sulphate ion

[a] Brown ring test [b] Barium chloride test
[c] Sodium nitroprusside test [d] None of these

3. The elements having highest ionization energies within their periods are called _____

[a] Halogens [b] Noble gases
[c] Alkali metals [d] Transition elements

4. The most electronegative value of an element can be calculated on the basis of its _____

[a] bond energy [b] electron affinity
[c] ionization energy [d] Oxidation number

5. Which of the following compounds have T shape?

[a] ClF_5 [b] IF_5 [c] ICl [d] ClF_3

6. Hybridization involved in $BeCl_2$ is _____

[a] sp [b] sp^2 [c] sp^3 [d] sp^3d

7. Many ionic compounds have some covalent ability due to

[a] ion polarization [b] neutron polarization

[c] proton polarization [d] atom polarization

8. Effective polarization will occur, if the _____

[a] size of cations is smaller [b] size of anion is larger

[c] charge on ions are higher [d] All of these

9. The oxidation number of iodine in periodic acid is _____

[a] +2 [b] +7 [c] +8 [d] +1

10. Due to the formation of _____, iodine is soluble in KI solution,

[a] I_3^- [b] K_3^+ [c] I_2^- [d] K_3^+

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11(a). Write notes on the oxidation and reduction reactions in qualitative analysis.

[OR]

(b). Give the general precaution to avoid accidents in laboratory.

12(a). Define ionization energy. Explain successive ionization energies.

[OR]

(b). Van-der Waals radius is larger than the covalent radius. Explain.

13(a). Explain sp and sp^2 hybridization with example.

[OR]

(b). Discuss the hybridization and shape of $SnCl_2$

14(a). State and explain Fajans' rule.

[OR]

(b). Discuss ion-ion interaction and ion-dipole interaction.

15(a). What are polyhalides? Explain with example.

[OR]

(b). Write short notes on the anomalous behaviour of fluorine.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Explain the applications of solubility product in qualitative analysis.

17. Describe the factors affecting electronegativity.

18. Draw and explain the MO diagram of oxygen molecule.

19. Define lattice energy. Explain the determination of lattice energy of NaCl.

20. Give a brief account of interhalogen compounds with examples.

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc., Chemistry** Date : **10.11.2017**
Paper Code : **17UCHS11** Time : **10:00 am to 01:00 pm**
Title of the Paper : **Sugar Technology** Max Marks : **75**

Section – A **[10 X 1 = 10]**
[Answer ALL the Questions]

1. Water present in sugar cane is

[a] 10-15 % [b] 25-30 % [c] 45-50 % [d] 70-75 %

2. Molecular formula of sucrose is

[a] $C_{12}H_{22}O_{11}$ [b] $C_6H_{12}O_6$ [c] $C_{12}H_{24}O_{12}$ [d] $C_{11}H_{22}O_{11}$

3. The pH range of cane juice is

[a] 3.1 to 6.5 [b] 5.1 to 5.7 [c] 7 to 7.3 [d] 10.5 to 11

4. During defection, milk of lime added to cane juice converts sucrose into

[a] White sugar [b] glucose
[c] bagasse [d] calcium sucrosate

5. Invert sugar is a mixture composed of

[a] Glucose + Fructose [b] Glucose + Sucrose
[c] Glucose + Starch [d] Glucose + maltose

6. Sugar purity can be determined by the _____ of sugar solution.

[a] Size [b] pH [c] Specific gravity [d] viscosity

7. By _____ process raw sugar converted in to white sugar.

[a] Filtration [b] precipitation [c] refining [d] evaporation

8. N.S.I stands for

[a] National Sugar Industries [b] National Sugar Institute

[c] National Sugar Index [d] National Sugar Information

9. Which is not an example for fermentation process?

[a] Curdling of milk [b] solidifying water

[c] curing of tobacco [d] putrefaction of milk

10. _____ blended with petrol used as a motor spirit.

[a] power alcohol [b] methanol [c] chloroform [d] ether

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11(a). Give a brief account on sugar industries in India.

[OR]

(b). Write a note on sugar beet.

12(a). Explain in detail how juice extracted from cane sugar.

[OR]

(b). Outline the process involved in the recovery of glucose from molasses.

13(a). Define defection. Give the difference between sulphitation and carbonation.

[OR]

(b). What is meant by clarification? Explain it.

14(a). Write a brief account on crystallization.

[OR]

(b). Give a note on bagasse.

15(a). Write down the preparation of alcohol from molasses.

[OR]

(b). Discuss the fermentation of wort in the beer manufacturing process.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Discuss the manufacturing process of cane sugar.

17. Describe the concentration of juice with the help of a schematic diagram.

18. Explain the estimation and testing of sugar.

19. Give a detailed account on double sulphitation method.

20. Write down the manufacturing process for the following:

i. Spirit and

ii. Wine

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc., Chemistry**
Paper Code : **17UCHS12**
Title of the Paper : **Perfume Chemistry**

Date : **13.11.2017**
Time : **10.00 a.m to 01.00 p.m**
Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. Essential oils are obtained from

   [a] Animals [b] plants

   [c] chemicals [d] micro organism

2. Which is not an animal fixative?

   [a] Diphenylmethane [b] castoreum

   [c] musk [d] ambergris

3. _____ has discoloring characteristic in light

   [a] Moskene [b] musk xylol

   [c] musk ambrette [d] musk xylene

4. The functional group present in terpinol is

   [a] Hydroxyl [b] ester

   [c] aldehyde [d] ketone

5. Heliotropin is also known as

   [a] Pyridine [b] piperonal

   [c] piperine [d] pyrrole

6. _____ used as a flavour in ice creams

[a] Anisic aldehyde [b] diphenyl ether

[c] cinnamic aldehyde [d] vanillin

7. Decomposition of glucoside in plants gives

[a] Vitamins [b] essential oils

[c] minerals [d] amino acids

8. Distillation of orange leaves yield

[a] Oil of orange [b] orange syrup

[c] oil of petitgrain [d] oil of nerol

9. How many parts of vanillin present in banana base?

[a] 5 [b] 10

[c] 15 [d] 20

10. Concentration of fruit juice carried out by_____ in vacuum

[a] Expression [b] fractional distillation

[c] refluxing [d] prickling

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) What are fixatives? Give its classification with examples

[OR]

b) Mention two sources of ethyl cinnamate. Give its preparation and uses

12. a) How is ionone synthesized? Draw the structures of α, β and γ ionones

[OR]

b) Give the preparation and uses of musk xylene and musk ketone

13. a) Write a note on diphenyl methane

[OR]

b) How is heliotropin prepared? Give its uses

14. a) Discuss the various individual constituents present in essential oils

[OR]

b) Write two formulations of jasmine perfume

15. a) What are artificial flavours? How do they differ from natural flavours?

[OR]

b) Give an account on chemical ingredients of grape flavour

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Discuss the preparation and uses of benzyl cinnamate and methyl cinnamate

17. Write notes on i) Citronellol and ii) Muscone. (5+5)

18. Give a brief account on vanillin and cinnamic aldehyde

19. Discuss in detail on rose perfume

20. Write down the compounds present in apple and pineapple compounds

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc. Zoology** Date : **15.11.2017**
Paper Code : **17UCHA11** Time : **10.00 a.m to 01.00 p.m**
Title of the Paper : **ORGANIC, INORGANIC & PHYSICAL CHEMISTRY** Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. Temporary hardness of water is due to the presence of _____
   Calcium or Magnesium.
   [a] bicarbonates [b] Sulphate
   [c] Chloride [d] Both 'b' and 'c'

2. Among the following, _____ is an example for suboxide.
   [a] H_2O_2 [b] N_2O
   [c] MnO_2 [d] BaO_2

3. Atoms of an element with same atomic number and different mass number are termed as _____
   [a] Isotopes [b] Isobars
   [c] Isotherms [d] Istones

4. Hydrogen peroxide act as a _____ agent.
   [a] Oxidising [b] Reducing
   [c] Bleaching [d] All

5. Welden Inversion is takes place in _____
   [a] E_1 [b] E_2
   [c] S_{N1} [d] S_N2

6. The presence of nitrogen in an organic compound is detected by ___ test.
[a] Laasigne's [b] Bayer's
[c] Mulliken [d] Nitroprusside

7. The shape of the molecules in which the hybridization of the central atom is '$ p^3' is _____
[a] Tetrahedral [b] Octahedral
[c] Linear [d] Angular

8. Oxygen molecule is exhibits _____
[a] dramagnetism [b] Paramagnetism
[c] Feromagnetism [d] anti-ferromagnetism

9. Solvent – loving, lyophilic colloids are also called as _____
[a] gels [b] sols
[c] Micelles [d] dispersions

10. Pick out the protective colloids
[a] gelatin [b] tragacanth
[c] gum acacia [d] all

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) What do you know about hardness of water? Explain the two different types of hardness of water (2 + 5)

[OR]

b) Outline the estimation of hardness in water by EDTA method

12. a) i) Distinguish between ortho and para hydrogen
ii) Mention any two uses of heavy hydrogen

[OR]

b) What are hedrides? How are they classified? Explain them with an example

13. a) Write a brief note on electrophiles and Nucleaphiles.

[OR]

b) How do you detect the presence of nitrogen in an organic compound by Lassaigne's test? Write the chemical reacton involved.

14. a) List out the postulates of V.B. theory.

[OR]

b) Illustrate with suitable diagram the $ - $ and p – p orbital overlapping

15. a) Describe about Hardy and Schulze rules with examples.

[OR]

b) Write any seven applications of colloids.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. How are oxides classified on the basis of their oxygen content and Chemical behavior? Give an examples.
17. Explain about the structure of hydrogen peroxide.
18. Explain the mechanism of bimolecular nucleophilic substitution (S_N 2) reaction with an example.
19. What is hybriclisation? Describe '$ p^3' hybridisation with an example.
20. i) Write a short note on dialysis (3)
ii) What are emulsions? Explain about microemulsions (2 + 5)

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc.,** Date : **06.11.2017**
Paper Code : **17UCHN11** Time : **10.00 a.m to 01.00 p.m**
Title of the Paper : **Industrial Chemistry** Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. Non-amino browning of milk is called _____

   [a] Sugar browning [b] Maillard browning

   [c] Caramelization [d] All of these

2. Pigment responsible for yellow color of milk

   [a] Carotene [b] Riboflavin

   [c] xanthophyll [d] Calcium Caseinete

3. Natural nutrients for plants are mainly derived from _____

   [a] CO_2 [b] Fertilizers

   [c] Air & water [d] Nitrogen

4. A good fertilizer will maintain the pH of the soil around _____

   [a] 3-4 [b] 7-8

   [c] > 8 [d] < 3

5. Milk suspension of crude rubber is called _____

[a] Latex [b] Natural rubber

[c] elastomer [d] None of these

6. In vulcanization process, cross-linking and bridges takes place at_____

[a] Saturated bonds [b] Unsaturated bonds

[c] Functional groups [d] None of these

7. In petroleum refining, the process used for conversion of hydrocarbons to aromatics is___

[a] catalytic reforming [b] hydrotreating

[c] alkylation [d] arylation

8. Octane number of gasoline is a measure of its_____

[a] Ignition temperature [b] Knocking tendency

[c] Ignition delay [d] Smoke point

9. _____ is taking place in nuclear fission reaction

[a] Reduction reaction [b] Oxidation reaction

[c] Chain reaction [d] Condensation reaction

10. The nuclei bombarded in nuclear power generators is _____

[a] ^{235}U [b] ^{200}Pu

[c] ^{206}Pb [d] ^{139}Ba

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) Write notes on the manufacturing process of butter

[OR]

b) Discuss the important steps in the production of ice-cream

12. a) What are micro nutrients? Explain their requirement for plants

[OR]

b) Explain the advantages of mixed fertilizers

13.a) Give the difference between natural and synthetic rubber

[OR]

b) Write notes on thermo plastics with their applications

14. a) What is cetane number? How it is related to fuel quality?

[OR]

b) Mention the differences between LPG and CNG

15. a) Write notes on nuclear power plants in India

[OR]

b) Discuss the merits of nuclear fuel as an alternative for conventional fuel

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. (i).Give the composition of milk. (ii). Explain the effect of heat on milk proteins

17. What the chief requisites of a good fertilizer? Discuss the role of NPK fertilizers

18. (i). Explain the vulcanizing process of rubber. (ii). Give the applications of thermosetting plastics

19. Describe the fractional distillation of crude oil

20. Give an account of nuclear hazard disposal and management

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Show that the roots of the equation $px^3 + qx^2 + rx + s = 0$ are in arithmetic progression iff $2q^3 + 27p^2 s = 9pqr$.
Hence solve $x^3 - 12x^2 + 39x - 28 = 0$.

17. Find the centre of curvature of the curve
$x = a(\cos t + t \sin t)$, $y = a(\sin t - t \cos t)$.

18. Establish a reduction formula for $I_n = \int sin^n x \, dx$ where $n \in N$ and hence find $\int_0^{\frac{\pi}{2}} sin^n x \, dx$.

19. i) Prove that $2^5 cos^6 \theta = \cos 6\theta + 6 \cos 4\theta + 15 \cos 2\theta + 10$.
ii) Prove that $i^i = e^{-(4n+1)\left(\frac{\pi}{2}\right)}$.

20. Find the shortest distance and the equation of the line of shortest distance between the straight lines
$\frac{x+3}{-4} = \frac{y-6}{6} = \frac{z}{2}$ and $\frac{x+2}{-4} = \frac{y}{1} = \frac{z-7}{1}$.

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc. Chemistry/Physics** Date : **15.11.2017**
Paper Code : **17UMAA11** Time : **10.00 a.m to 01.00 p.m**
Title of the Paper : **ALLIED MATHEMATICS PAPER - I** Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. If $f(x)$ is a polynomial of degree $n > 0$ then $f(x)$ has _____
[a] no root [b] at least one root
[c] exactly n real roots [d] at most (n + 1) roots

2. If α, β, γ are the roots of $x^3 + qx + r = 0$ then the value of $(\alpha + \beta + \gamma)$ is _____
[a] 0 [b] q
[c] $\frac{q}{r}$ [d] $\frac{r}{q}$

3. The radius of curvature of $y = \sin x$ is _____
[a] 1 [b] 2
[c] -1 [d] 0

4. The ordinate of the centre of curvature of the curve $y = x^2$ at the origin is _____
[a] 0 [b] $\frac{1}{2}$
[c] $\frac{-1}{2}$ [d] 2

5 If $f(x)$ is an odd function, then $\int_{-a}^{a} f(x) \, dx =$ _____
[a] 2a [b] 2
[c] 0 [d] -2a

$\int_0^{\pi}$ _____

[a]) $\frac{61\pi}{512}$ [b] $\frac{62\pi}{512}$

[c] $\frac{63\pi}{512}$ [d] $\frac{64\pi}{512}$

7. $\sin(i\,x)$ = _____

[a] $\sinh x$ [b] i $\sinh x$

[c] $-i \sin h\, x$ [d] $\sin\, x$

8. The imaginary part of Log (1 + i) is = _____

[a] $2n\pi + \frac{\pi}{4}$ [b] $2n\pi$

[c] $\frac{\pi}{4}$ [d] $\frac{\pi}{2}$

9. If l, m, n and l_1, m_1, n_1 are the direction cosines of two straight lines then the lines are perpendicular is _____

[a]) $ll_1 + mm_1 + nn_1 = 1$ [b] $ll_1 + mm_1 + nn_1 = 0$

[c] $\frac{l}{l_1} = \frac{m}{m_1} = \frac{n}{n_1}$ [d] $ll_1 + mm_1 + nn_1 \neq 0$

10. The straight lines in spaces which are not coplanar are called _____ lines

[a] Parallel [b] perpendicular

[c] skew [d] intersecting

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) Solve the equation $x^5 - x^4 + 8x^2 - 9x - 15 = 0$ if $\sqrt{3}$ and $1 - 2i$ are two of its roots.

[OR]

b) If α, β, γ are the roots of the equation $x^3 + ax - b = 0$ find the value of

(i) $\Sigma\left(\frac{\alpha}{\beta\gamma}\right)$ (ii) $\Sigma\left(\frac{\alpha}{\beta+\gamma}\right)$ (iii) $\Sigma\left(\frac{1}{\beta+\gamma}\right)$

12. a) Find the radius of curvature at any point of the curve

$x = a\cos^3\theta\, , y = a\sin^3\theta$

[OR]

b) Prove that the y – coordinate of the centre of curvature of the curve at the point (c , c) is 2c.

13. a) Evaluate $I = \int_0^{\frac{\pi}{4}} log(1 + \tan\theta)\, d\theta$

[OR]

b) Establish a reduction formula for $I_n = \int sec^n\, x\, dx$.

14. a) Expand $\sin 7\theta$ in powers of $\cos\,\theta$ and $\sin\theta$. Hence prove that

$\frac{\sin 7\theta}{\sin\,\theta} = 7 - 56\, sin^2\theta + 112\, sin^4\theta - 64\, sin^6\theta$.

[OR]

b) If $i^{a+ib} = a + ib$ prove that $a^2 + b^2 = e^{-(4n+1)\pi b}$

15. a) Find the equation of the plane which passes through the point (1, -2, 1) and is perpendicular to each of the planes $3x + y + z - 2 = 0$ and $x - 2y + z + 4 = 0$.

[OR]

b) Show that then lines $\frac{x-2}{1} = \frac{y-4}{2} = \frac{z-5}{2}$ and $\frac{x-5}{2} = \frac{y-8}{3} = \frac{z-7}{2}$ are coplanar and find the equation of the plane containing them.

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc. Zoology** Date : **15.11.2017**
Paper Code : **17UZOA11** Time : **10.00 a.m to 01.00 p.m**
Title of the Paper : **INVERTEBRATA** Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. Excretion in Amoeba occurs by _____
   [a] Contractile vacuole [b] Food vacuole
   [c] Plasmalemma [d] Cytoplasm
2. In Amoeba binary fission takes place by _____
   [a] Mitosis [b] Meiosis
   [c] Amitosis [d] Free nuclear division
3. _____ is also referred as lagoon island.
   [a] Fringing reef [b] Barrier reef
   [c] Atoll reef [d] shore reef
4. _____ in corals occurs only at night.
   [a] Feeding [b] Budding
   [c] Growth [d] Branching
5. Phtyhelminthes are _____
   [a] Acoelomate [b] Haemocoelomate
   [c] Coelomate [d] Pseudocoelomate
6. The aperture present at posterior end of Fasciola hepatica is _____
   [a] Anus [b] Excretory pore
   [c] Genital apertures [d] Cloacal aperture

7. The coelom in Annelida is
[a] Pseudocoelic [b] Enterocoelic
[c] Schizocoelic [d] Acoelous

8. Peripatus is _____
[a] Oviparous [b] viviparous
[c] Ova -vivparous [d] None

9. _____ is the larva of Starfish
[a] Bipinnaria [b] Miracidium
[c] Nauplius [d] Zoea

10. _____ is the respiratory pigment of molluscs
[a] Haemoglobin [b] Haemerythrin
[c] Haemocyanin [d] Chlorocruorin

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) Classify phylum protozoa upto classes with two examples.

[OR]

b) Enumerate the general characters of phylum protozoa

12. a) List down the salient features of phylum coelenterala.

[OR]

b) Describe the life cycle of obelia

13. a) Explain the process of reproduction and development in Fasciola.

[OR]

b) How are helminthes worms adapted to parasitic mode of life?

14. a) Briefly explain the affinities of peripatus.

[OR]

b) Write a short note on pest of paddy and its control methods.

15. a) Explain the structure of edible oyster with a neat sketch.

[OR]

b) Comment on the economic importance of mollusks.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Give an illustrated account on life history of plasmodium.
17. Discuss the canal system in sponges
18. Describe the life history of filarial worm and its transmission.
19. With a neat sketch explain the nervous system of earthworm.
20. "Water vascular system plays a vital role in starfish" – Justify

18. Differentiate with respect to x. the following

(i) $\frac{x^5+x^3+x}{\sqrt{x}}$ (ii) $\frac{x^{3/4}+x^{1/4}+x^{5/4}}{x^{1/4}}$

19. (i) Show that $\frac{log_{\,2}5}{log_{\,2}7} - \frac{log_{\,4}5}{log_{\,4}7} = 0$

(ii) Show that $\frac{\log\sqrt{27}+\log 8+\log\sqrt{1000}}{log120} = \frac{3}{2}$

20. State Demorgan's law by drawing Venn diagram.

(a) Demorgan's law for two sets are:

(i) $(A \cup B)' = A' \cap B'$ (ii) $(A \cap B)' = A' \cup B'$

(b) Demorgan's law for three sets are:

(i) $A - (B \cap C) = (A - B) \cup (A - C)$

(ii) $A - (B \cup C) = (A - B) \cap (A - C)$

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : I **B.Sc.,** Date : **06.11.2017**

Paper Code : **17UMAN11** Time : **10.00 a.m to 01.00 p.m**

Title of the Paper : **Fundamentals of Mathematics** Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. The number of rows and the number of columns that are present in a matrix is called _____

[a]Matrix [b]Order of a matrix

[c]Row matrix [d]Similar Matrix

2. A square matrix in which all the non-diagonal elements are zeros and all diagonal elements are equal is called_____

[a]Symmetric matrix [b]Diagonal matrix

[c]Scalar Matrix [d]Square Matrix

3. $(a^m)^n$ =_____

[a]a^{m+n} [b] a^{mn} [c] a^{m-n} [d] a^{nm}

4. If x is a positive non perfect square number $\sqrt[n]{x}$ is _____

[a]Surd [b]indices

[c]Surd of order n [d]indices of order n

5. The process of finding the differential coefficient of a function is called_____

[a] Derivative [b] Limits

[c] Differential Coefficient [d] Differentiation

6. Differentiate with respect to x, $15x^6$=_____

[a]$60x^3$ [b]$15x^3$ [c]$60x^4$ [d]$40x^3$

7. The relation a^x=N is called_____

[a] Exponential form [b] Logarithm form

[c] Common logarithm [d] Natural Logarithm

8. $\text{Log}_a\left(\frac{m}{n}\right)$ =_____

[a] $\log_a m + \log_a n$ [b] $\log_a m - \log_a n$

[c] $\log_a mn$ [d] $\log_a m^n$

9. A set having only one element is called_____

[a] Subset [b] Set [c] Singleton Set [d] Power Set

10. The set of all distinct subsets of a set is called_____

[a] Subset [b] set

[c] Singleton Set [d] Power Set

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. [a] Define: Triangular matrix and skew symmetric matrix with examples

[OR]

[b] If A= $\begin{bmatrix}1 & 4\\ -3 & 2\end{bmatrix}$ B=$\begin{bmatrix}3 & -1\\ -1 & 2\end{bmatrix}$ and C=$\begin{bmatrix}1 & 2\\ 2 & -4\end{bmatrix}$ Prove that

A(BC) =(AB)C

12. [a] Simplify [i] $2(4)^{-3}+(4/3)^{-2}+(x+7)^0$

[ii] $9^{3/2}+4^{-3/2}$

[iii] $(32)^{3/5} - 5(64)^{2/3}$

[OR]

[b] Simplify [i] $\sqrt[3]{5}\,X\sqrt{2}$, [ii]$\sqrt[4]{3^2} \times \sqrt{5^2}$ and [iii] $5 * \sqrt[3]{6} \times \sqrt[3]{2}$

13. [a] If $y = \frac{(2-x)^2}{x^2}$ find $\frac{dy}{dx}$

[OR]

[b] Differentiate: (i) $7x^3-4x^2+2x$ (ii) $x^9+x^{3/7}$

14. [a] Find the value of the following

(i) $log_{16}(64)$ (ii) $log_{\sqrt{3}}(729)$

[OR]

[b] Show that $7log\frac{16}{15} + 5log\frac{25}{24} + 3log\frac{81}{80} + log\frac{1}{2} = 0$

15. [a] If $A = \{1,2,3\}$ $B = \{1,2,3,4,5\} C = \{3,4,5,6\}$ Find

$(i) A\Delta B$ $(ii) A \cup (B\Delta C)$ $(iii)(A\Delta B) \cap C$

[OR]

[b] Using Venn-diagram prove that

(i) $(A \cup B) \cap C = (A \cap C) \cup (B \cap C)$

(ii) $(A \cap B) \cup C = (A \cup C) \cap (B \cup C)$

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. If A= $\begin{bmatrix}1 & -1\\ 2 & -1\end{bmatrix}$, B= $\begin{bmatrix}a & 1\\ b & -1\end{bmatrix}$ and $(A+B)^2 = A^2+B^2$. Find a and b

17. Simplify $\frac{1}{\sqrt{3}+\sqrt{4}} + \frac{1}{\sqrt{4}-\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{6}} - \frac{1}{\sqrt{3}+\sqrt{6}}$

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G .T.N. ARTS COLLEGE (AUTONOMOUS)

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : I B.Sc.,
Paper Code : **17UPHN11**
Title of the Paper : **Basic Physics**

Date : **06.11.2017**
Time : **10.00 a.m to 01.00 p.m**
Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. The unit of amount of substance is

   [a] mol [b] mole

   [c] candela [d] second

2. The order of Gravitational constant in M.K.S system is

   [a] 10^{9} [b] 10^{-9}

   [c] 10^{-11} [d] 10^{-10}

3. The conversion of liquid into solid is

   [a] Fusion [b] Solidification

   [c] Vaporization [d] Sublimation

4. The boiling temperature of water is

   [a] $50^{0}C$ [b] $60^{0}C$

   [c] $100^{0}C$ [d] $80^{0}C$

[a] Joule [b] Watt

[c] Candela [d] All the above

6. In fan, the electrical energy is converted into _____ energy.

[a] Sound [b] light

[c] chemical [d] mechanical

7. An example for renewable sources of energy is

[a] air [b] water

[c] solar [d] all the above

8. ____ is used for electricity production.

[a] Bio mass [b] Air

[c] Sunlight [d] All the above

9. According to law of reflection,

[a] $\angle i = \angle r$ [b] $\angle i > \angle r$

[c] $\angle i < \angle r$ [d] $\angle i = \angle r = 0^0$

10. Other name for far sightedness is

[a] myopia [b] hyper metropia

[c] presbyopia [d] gyropia

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11 a) Define fundamental and derived quantities with example.

[OR]

b) Write notes on (a) Length (b) Mass.

12 a) Explain change of state.

[OR]

b) Explain latent heat of Fusion.

13 a) List the advantages and drawbacks of atomic energy.

[OR]

b) What are the different applications of Electrical energy.

14 a) What are the advantages of Renewable energy?

[OR]

b) What is meant by Biomass? Explain.

15 a) (i) State laws of Reflection. (ii) State Snell's law.

[OR]

b) What are the defects of eye? How to rectify it.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Derive TEN types of derived physical quantities with their symbol and units.

17. Explain Plasma. List the applications of Plasma.

18. Write a note on Sound, Electrical and Optical energy.

19. What are renewable and non-renewable energy? Explain Solar energy with their advantages.

20. Explain the formation of image in convex lens.

When object at (i) Infinity (ii) Centre of Curvature C

(iii) Between C & F (iv) Principal Focus

(v) Between F & Pole

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : **I B.Sc**
Paper Code : **17UZON11**
Title of the Paper :**Human Biology**

Date : **06.11.2017**
Time : **10.00 a.m to 01.00 p.m**
Max Marks : **75**

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. Rickets is caused by the deficiency of vitamin

   [a] D [b] A

   [c] C [d] B

2. Which of the following is a protein deficiency syndrome?

   [a] Cheilosis [b] Down

   [c] Turner [d] Kwashiorkor

3. Barr body is present in

   [a] Human male [b] Male cat

   [c] Human female [d] None of these

4. Which of the following syndrome is otherwise called as Mangoloid idiocy?

   [a] Down syndrome [b] Turner syndrome

   [c] Kline felter [d] Haemophilia.

5. The air containing CO_2 goes out of lungs during

[a] Inspiration [b] expiration

[c] Perspiration [d] None of these.

6. Which of the following is a non-nucleated cell?

[a] RBC [b] WBC

[c] Monocyte [d] Neutrophil

7. At the end of pregnancy, the foetus is expelled from the uterus through genital opening. This process is called as

[a] Menstruation [b] Parturition

[c] Foetus movement [d] Menopause

8. The period life when menstruation naturally ceases is called as

[a] Menstrual cycle [b] Menopause

[c] Senescence [d] None of these

9. Which of the following is a contraceptive device?

[a] Tubectomy [b] Vasectomy

[c] Condom [d] All of these

10. Fertilizing eggs with sperms in the laboratory is called as

[a] IVF [b] Transgenic technology

[c] Genetic engineering [d] HEPA

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11. a) Write a note on Malnutrition.

[OR]

b) Analyze the role of enzymes in carbohydrate digestion.

12. a) Discuss about human blood groups

[OR]

b) Give an account on Turner syndrome.

13. a) Describe the structure of lungs

[OR]

b) Explain about the Electrocardiogram and its importance.

14. a) Write a note on twins and their types.

[OR]

b) Describe the structure of human sperm with neat diagram.

15. a) Give an account on Test-tube baby.

[OR]

b) Write a note on infertility.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Discuss in detail about balanced diet.
17. Write an essay on Human genome project.
18. Describe the structure of kidney with neat illustration.
19. Write a detailed note on menstrual cycle.
20. Give a detailed account on birth control methods.

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : I Year B.A. / B.Sc.,
Paper Code : 17UTAL11
Title of the Paper : இக்கால இலக்கியமும், புனைகதையும்

Date : 01.11.2017
Time : 10:00 am to 01:00 pm
Max Marks : 75

பகுதி – அ [10 X 1 = 10]

[சரியான விடையைத் தேர்ந்தெடுத்தெழுதுக]

1. 'எங்கிருந்தோ வந்தான் இடைச்சாதி நான் என்றான்' இவ்வடியில் இடம்பெறும் இடைச்சாதியைச் சார்ந்தவன் யார்?
   அ. பாரதியார் ஆ. பாரதிதாசன் இ. கவிமணி ஈ. கண்ணன்
2. 'மக்கள் கவிஞர்' என்றழைக்கப்படுபவர் யார்?
   அ. பாரதியார் ஆ. பாரதிதாசன்
   இ. பட்டுக்கோட்டை கலியாணசுந்தரம் ஈ. கவிமணி
3. 'காகிதப்பூக்கள்' என்று நா. காமராசன் யாரை உருவகப்படுத்துகிறார்?
   அ. மல்லிகை ஆ. செம்பருத்தி இ. திருநங்கைகள் ஈ. காகிதப்பூ
4. எந்த இருளுக்குள் நுழைய வேண்டாம் என்கிறார் கவிஞர்.மீரா?
   அ. நான் ஆ. மழை இருட்டு
   இ. காட்டில் உள்ள இருள் ஈ. விளக்கில்லாத இருள்
5. சாவுத்திரி என்ன, என்ன பட்டங்களைப் பெற்றாள்?
   அ. எம்.ஏ., ஆ. எம்.காம்., இ. பி.ஏ.,எல்.டி., ஈ. பி.எஸ்.சி.,

6. வைதய விரதத்துக்கு ஆட்பட முடியாமல் தனக்கென ஒரு பாதை வகுத்து கொண்டவள் யார்?

அ. மீனா ஆ. கீதா இ. வைதேகி ஈ. பார்வதி

7. குற்றியலுகரம் எத்தனை வகைப்படும் ?

அ. 12 ஆ. 6 இ. 8 ஈ. 10

8. மொழிக்கு இறுதியில் வரும் மெய்யெழுத்துக்களின் எண்ணிக்கை எத்தனை?

அ. 24 ஆ. 10 இ. 11 ஈ. 14

9. 'சிந்துக்கு தந்தை' என்றழைக்கப்படுபவர் யார்?

அ. கண்ணதாசன் ஆ. முடியரசன் இ. பாரதியார் ஈ. பாரதிதாசன்

10. 'சிறுகதையின் மன்னன்' என்றழைக்கப்படுபவர் யார்?

அ. புதுமைப்பித்தன் ஆ. கு.பா. ராசகோபாலன்

இ. ஜெயகாந்தன் ஈ. வள்ளியப்பன்

பகுதி – ஆ [5 X 7 = 35]

[அனைத்து வினாக்களுக்கும் விடையளி]

11. அ) 'கவிஞன் அல்லன்' என்று யார், யாரையெல்லாம் முடியரசன் வரிசைப்படுத்துகிறார்?

(அல்லது)

ஆ) 'பாரத தேசம் பட்டினி ஒழிந்து வாழ வேண்டும்' என்பது ஏழைக்கவிஞனின் இதயத்துடிப்பு என்றவர் யார்? விளக்குக.

12. அ) திருநங்கைகளின் மன உணர்வுகளை 'காகிதப்பூக்கள்' வழி விளக்குக.

(அல்லது)

ஆ) 'சுயம்' இழந்த பெண்ணின் இயல்புகளை 'சுயம்' கவிதையின் வழி விளக்குக

13. அ) வறுமையில் உள்ள மக்கள் தொடர்ந்து ஏமாற்றங்களை அடையும் பாங்கினை 'செவ்வாழை' கதை வழி விளக்குக.

(அல்லது)

ஆ) கி.ராஜநாராயணனின் 'கதவு' என்ற சிறுகதை எடுத்துரைக்கும் செய்திகளைத் தொகுத்துரைக்க

14. அ) வல்லினம் மிகா இடங்களை வரிசைப்படுத்துக.

(அல்லது)

ஆ) மொழிக்கு இறுதியில் வரும் எழுத்துக்களின் எண்ணிக்கை எத்தனை? விளக்குக.

15. அ) பொருள் வேறுபாடு தருக.

1.தலை, தளை, தழை 2. நாலி, நாளி, நாழி

3.அலி, அளி, அழி 4. புகழ், புகல்

(அல்லது)

ஆ) சிறுகதையின் இலக்கணம் கூறி, புதுமைப்பித்தனின் நடைத்திறனை விளக்குக.

பகுதி – இ [3 X 10 = 30]

[எவையேனும் மூன்றனுக்கு விடையளி]

16. 'கண்ணன் என் சேவகன்' என்று பாரதி விதத்துரைத்த விதத்தைக் கட்டுரைக்க.

17. விலங்கினும், கீழானவன் மனிதன் என்பதை 'ஐந்து பெரிது, ஆறு சிறிது' என்ற கவிதையின் வழி விளக்குக.

18. ஜெயகாந்தனின் பெண்ணியச் சிந்தனையை 'யுகசந்தி' வழி விளக்குக.

19. சார்பெழுத்து எத்தனை வகைப்படும்? அதன் வகைகளை எடுத்துக்காட்டு தந்து கட்டுரைக்க.

20. புதுக்கவிதையின் இலக்கணம் என்ன? அக்கவிதை தோன்றி, வளர்ந்த விதத்தைக் கட்டுரைக்க.

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SUMMATIVE EXAMINATION - NOVEMBER 2017

Class : I B.A / B.Sc., / B.Com / B.Com(C.A)/B.B.A Date : 03.11.2017
Paper Code : 17UENL11 Time : 10:00 am to 01:00 pm
Title of the Paper : **English for Enrichment** Max Marks : 75

Section – A **[10 X 1 = 10]**

[Answer ALL the Questions]

1. The phrase 'that one talent' in the poem *On His Blindness* refers to _____

[a] a unit of money [b] poetic genius
[c] Reconciliation [d] his epics

2. The African-American in *Telephone Conversations* describes himself as __

[a] West-African Sepia [b] South African Goldmines
[c] Dark Chocolates [d] Cigarette holder

3. What is the song sung by all of God's children?

[a] Negro still is not free [b] I have a dream today
[c] For whites only [d] Free at last

4. What does Leacock mean when he says, "I was conscious of a break in my voice."?

[a] He paused for a while in his speech [b] his voice was not clear
[c] He was about to cry [d] the photographer interrupted

5. How did Orpheus break his engagement?

[a] by playing on his golden harp [b] by leaving the Earth
[c] by defeating Cerberus [d] by turning round to look at Eurydice

6. The rent for keeping the road engine in the Gymkhana grounds was _____.

[a] `. 10/- [b] `.3/- [c] `.5/- [d] `. 4/-

7. Which of the following is a transitive verb?

[a] The ice melted [b] She sings gracefully
[c] They sold their house [d] My baby is beautiful

8. Find the highlighted part of the sentence: The dog barks **during the night.**

[a] Noun [b] adverb [c] adjective [d] pronoun

9. What is the component of cheap ad?

[a] words get limited by offer [b] words create an emotional effect
[c] effective words are used [d] words are attractive

10. Precise writing is a _____ of an original passage.

[a] summary [b] abstract
[c] outline [d] order of ideas

Section – B **[5 X 7 = 35]**

[Answer ALL the Questions]

11(a). Give the character sketch of the white lady in *Telephone Conversation.*

[OR]

(b). Discuss the theme of *Ozymandias*

12(a). What are the defects of being spoon-fed in our daily activities?

[OR]

(b). Narrate how Leacock's narration moves us to sympathy.

15(a). Describe the valor of Prince Victor.

[OR]

(b). Discuss the tragic love of Orpheus and Eurydice.

14(a). Fill in the blanks with articles:

i) I met __ boy yesterday. ___ boy belongs to Delhi.

ii) There is some water in the pond. But ___ water is muddy.

iii) __ new bridge is being constructed across ___ river Pampa by ___ engineering company.

iv) Mr.Shankar is ___ MP

[OR]

(b). Fill in the blanks as instructed in the brackets:

i) ____ is a champion in Chess. (Noun)

ii) _____ My team has won the shield. (Interjection)

iii) The girl comes late. ____ has missed her train. (Pronoun)

iv) Ragav is sick ___ he completes his work on time. (Conjunction)

v) Mango is a _____ fruit. (Adjective)

vi) ____ Please be quiet. (Interjection)

vii) The child jumped ___ joy. (Preposition)

15(a). Draft a creative advertisement for a furniture showroom.

[OR]

(b). Write a formal letter for a bank to issue a new passbook.

Section – C **[3 X 10 = 30]**

[Answer Any THREE Questions]

16. Discuss in detail how D.H.Lawrence explores the purity and innocence of the Other World in contrast to the Humans.

17. Write in brief about the optimistic values to be instilled to Lincoln's son in his letter to the headmaster.

18. Bring out the humour in *Engine Trouble*.

19. Find whether the following verbs are transitive or intransitive:

a) She paints a picture.

b) Shyam is not aware of my arrival till now.

c) Today is a fine day.

d) Early bird catches its prey.

e) Purnima makes her speech tomorrow.

f) How dare you!

g) She has come at the last moment.

h) The dog barks.

i) He has stolen the car.

j) Maria is a cook.

20. Make précis for the following passage:

All of us have friends. Some are true friends but some are not. Who is a true friend? How can we recognize a real friend? A true friend is one who is sincere to us and is ready to help us when we are in need of help. When we are in the best of circumstances, when we have plenty of money, when we are happy in every way, there will be

many people around us pretending to be our friends. But many of them are false and insincere. They are there only to take advantage of the circumstances we are in. If there is a sudden change in our fortunes and we are in need of help from our friends, these insincere people will vanish immediately. Only true friends will remain with us at that time. We can recognize our true friends only during times of adversity. So it is important to choose our friends carefully. False friends can do more harm to us than our sworn enemies because, while we avoid our enemies, we tend to trust those who pretend to be our friends. Only fire brings out the true quality of pure gold. Similarly, only unfortunate circumstances help us to recognize our true friends.