Faculty of Science
B.Sc IST Semester (Practical) Examination
Subject: **Physics**
QUESTION BANK
W.E.F 2016

Time: 2 Hours Max.Marks : 25

Note: Candidate may be asked to strike of any one question (Among allotted 6 experiments for the batch which he does not want to attempt). Any one from the reaming may be allotted to the candidate:

1. Estimate the time period of simple pendulum using the theory of errors and calculate 'g'value.
2. Determine the moment of inertia of a 'Fly Wheel'.
3. Determine 'Y' by uniform bending method
4. Determine the surface tension of water using capillary rise method
5. Determine the coefficient of viscosity of water by studying the flow through a capillary tube.
6. Determine 'g' and 'k' using a compound pendulum.
7. Determine the 'Y' of a given material using non-uniform bending.
8. Determine the rigidity modulus of the material of the give wire using torsional pendulum.
9. Determine the surface tension of given liquid.
10. Determine the viscosity of given liquid.
11. Determine the moment of inertia of a given fly wheel and verify it with the theoretical value.
12. Determine the 'g' value using compound pendulum.

Faculty of Science
B.Sc. I Semester (Practical) Examination
Subject: Chemistry; Paper –I
QUESTION BANK
W.E.F.from 2016

Time: 2 hrs.
Max.marks:25

1. Write the systematic procedure for the analysis of the following anions. (5)

Q.No	Anions
1	SO_4^{-2} ; Cl^-
2	S^{-2} ; NO_3^-
3	$CHCOO^-$; CO_3^{-2}
4	S^{-2} ; PO_4^{-3}
5	NO_3^- ; Cl^-
6	SO_4^{-2} ; Br^-
7	CO_3^{-2} ; SO_4^{-2}
8	$CHCOO^-$; SO_4^{-2}
9	BO_2^- ; Cl^-
10	I^- ; PO_4^{-3}
11	I^- ; CO_3^{-2}
12	Br^- ; NO_3^-
13	CO_3^{-2} ; SO_4^{-2}

II a . Analyse the given mixture using semi-micro qualitative technique systematically and report the two anions present in it. (14)

Q. No.	Salt mixture
1	$(NH_4)_3 PO_4$ + $CdAc_2$
2	$AlCl_3$ + $Ba(NO_3)_2$
3	$Sr(NO_3)_2$ + $Mg CO_3$
4	$MgSO_4$ + NH_4I
5	$CdCl_2$ + $(NH_4)_3 PO_4$
6	$Pb(NO_3)_2$ + $NH_4 Ac$
7	$FeSO_4$ + NH_4Cl
8	$Ca CO_3$ + $Mg (NO_3)_2$
9	NH_4Br + $Ca CO_3$
10	$Al_2 (SO_4)_3$ + $ZnCl_2$
11	$MgSO_4$ + $(NH_4)_2 CO_3$
12	$Ba(NO_3)_2$ + MgI_2
13	$ZnCl_2$ + $BaAc_2$
14	$Ca CO_3$ + $Mg (NO_3)_2$
15	$ZnCl_2$ + $NH_4 Ac$

II b. Write the structure of any one the following In-organic complexes . (2)

1. Tetrammine copper (II) sulphate,
2. Potash alum $KAl(SO_4)_2 . 12H_2O$,
3. Bis (dimethylglyoximato) nickel (II)

Subject: Chemistry; Paper –I
Scheme of valuation

I.	Procedure	---	5 marks
II a.	Solubility	---	2 marks
	Flame test	---	2 marks
	2 anions	---	2 X 4 marks
	report	---	2 marks
II b.	Structure	---	2 marks
III.	Record and Viva voce	---	4marks

FACULTY OF SCIENCE

B.Sc. I-Semester (CBCS) (Practical) Examination, 2016

Subject: BOTANY

Paper - I
Microbial Diversity of Lower Plants

QUESTION BANK
W.E.F. - 2016

Time: 2 hrs **Max. Marks: 25**

Note: Answer All quotations. Draw well labelled diagrams wherever necessary.

I. Identify the algal components (A.B.C) in the given mixture. Draw labelled diagrams, classify and identify giving important characters [Diagrams-I; classification-1; character : 1] **(3x3=9)**

1 Oscillatoria
2 Nostoc
3 Anabaena
4 Volvox
5 Oedogonium
6 Chara
7 Ectocarpus
8 Polysiphonia

II. Describe the procedure of bacterial staining and identify the given Bacterium(D) (Procedure – 2; Description-1 Identification-1] **(4)**

9 Gram + Bacteria
10 Gram – Bacteria

III. Prepare T.S. of the diseased material as a temporary mount (E) Identify the pathogen giving reasons and describe with the help of diagrams. (Preparation-1; Identification -1; Diagram-1; Description-1; Classification-1) **(5)**

11 White rust of crucifers
12 Rust on sorghum
13 Tikka disease of groundnut

IV. Identify giving reasons the specimens 'F, G & H' (Fungal-1, Bacteria-1 & Viral-1) **(3x1=3)**

14 White rust of crucifers
15 Puccinia – Rust of wheat
16 Puccinia – Rust of Barbery
17 Tikka Disease of groundnut
18 Angular leaf spot of cotton
19 Rice tungro
20 TMV

..2

V Identify and comment on the given slides. (Algae-1, Fungi-1) **(2x1=2)**

21 Oscillatoria - Cell structure / Thallus / Filament
22 Nostoc - Cell structure / Thallus / Filament
23 Volvox – Coenobia
24 Volvox – daughter colonies
25 Volvox – asexual Reproduction
26 Volvox – sexual Reproduction
27 Oedogonium – vegetative structure
28 Oedogonium – Cap cells
29 Oedogonium – Nanandria
30 Oedogonium – Macrandria
31 Chara – Nucule
32 Chara – Globule
33 Ectocarpus – vegetative structure
34 Ectocarpus – Plurilocular Sporangia
35 Ectocarpus - Unilocular Sporangia
36 Polysiphonia – vegetative structure
37 Polysiphonia – Cystocarp
38 Polysiphonia – Spermatangial clusters
39 Polysiphonia – Carpogonium
40 Polysiphonia – Tetra spore
41 Albugo – Conidia
42 Albugo – Oosores
43 Mucor –
44 Saccharanyces – vegetative / Budding
45 Penicilium – Conidia
46 Penicilium – Ascocarp
47 Puccinia – Uridial Stage
48 Puccinia – Telian Stage
49 Puccinia – Pycnial Stage
50 Puccinia – Aceial Stage

VI Record. **(2)**

B.Sc. (Iyr) I-Semester (CBCS)
Paper – I Animal Diversity
Invertebrates (Course type D5C2A)
[Model Question Paper – I]
Zoology

Time: 2hrs **Max Marks. 25**

1. Identify the given spotters (1-7 specimens & 2 – slides) giving reasons for the identification with a neat labelled diagram.

[5x2 = 10Marks]

2. Dissect and display and draw a neat labeled diagram

[4+1 = 5Marks]

3. Field visit and note book. write a report on the observations made and submit during practical examination

[2Marks]

4. Project work

[2Marks]

5. Certified Practical Record

[2Marks]

6. Animal Album

[2Marks]

7. Viva voice

[2Marks]

Note:

1. For 1 & 2 Question Bank is given
2. 3, 4, 5, 6 & 7: common Questions for all batches.

KEY– I

I. Identify the given spots A, B, C, D, E, F, G, H & I and give reasons for identification

[5x2 = 10M]

1. 2b, 3d, 4c, 5g, 6d
2. 2c, 3h, 5g, 6c, 7d
3. 2a, 3f, 6d, 5c, 7f
4. 3e, 5b, 6a, 7g, 8c
5. 3d, 5e, 6c, 8f, 9c
6. 3c, 4a, 5c, 6b, 8a
7. 3f, 4c, 5a, 7a, 8b
8. 3g, 4i, 5e, 6c, 8i
9. 2c, 3d, 5g, 6d, 8c,
10. 2b, 3c, 6d, 8f, 9d
11. 2c, 3g, 4c, 8a, 9b
12. 2b, 3h, 5e, 6c, 8f
13. 2a, 4a, 5g, 6b, 7d
14. 2a, 4c, 5b, 6a, 7g
15. 7f, 4a, 9f, 6b, 3f
16. 2a, 3h, 5g, 5c, 7f
17. 3d, 5e, 6c, 7a, 8b
18. 3c, 4a, 5g, 6c, 8i
19. 2c, 3g, 5b, 6a, 7g
20. 2a, 4c, 5e, 6d, 7a

Specimens + Slides

I. Protozoa (slide)

1a. Amoeba (slide)
1b. Paramecium (slide)
1c. Paramecium – Binary fission (slide)
1d. Paramecium – Conjugation (slide)
1e. Vorticella (slide)
1f. Entamoeba histolytica (slide)
1g. Plasmodium viva x(slide)

II. Porifera

2a. Sycon
2b. Spongilla
2c. Euspongia

2d. T. S. of sycon(slide)
2e. L. S. of sycon(slide)
2f. Spicules(slide)
2g. Gemmule(slide)

III. Coelenterata

3a. Obelia colony (slide)
3b. Obelia Medusa (slide)
3c. Aurelia
3d. Physalia
3e. Vellela
3f. Corallium
3g. Gorgenia
3h. Pennatula

IV. Platyhelminthes

4a. Planaria (Specimen)
4b. Planaria (slide)
4c. Fasciola hepatica (specimen)
4d. Fasciola hepatica (slide)
4e. Fasiola larval forms – Miracidium (slide)
4f. Redia (slide)
4g. Cercasia (slide)
4h. Echinococcus granulossus (slide)
4i. Taenia selium (specimen)
4j. Taenia selium (scale x proglottid)
4k. Schistosama hematobium (slide)

V. Nemathelminthes

5a. Ascaris (male) specimen
5b. Ascaris (female) specimen
5c. Dracunculus (specimen)
5d. Drancunculus (slide)
5e. Ancylostoma (specimen)
5f. Ancylostoma (slide)
5g. Wuchereria bancrofti (specimen)
5h. Wuchereria bancrofti(slide)

VI. Annelida

6a. Neries
6b. Aphrodite
6c. Chaetopterus
6d. Hirudinaria
6e. Trochophore larva (slide)

VII. Arthropoda

7a. Cancer
7b. Palaemon
7c. Scorpion
7d. Scoropendra
7e. Sacculina
7f. Limulus
7g. Peripatus
7h. Narplius (slide)
7i. Mysis (slide)
7j. Zoea (slide)
7k. Mouth parts of Amopheles male (slide)
7l. Mouth parts of Amopheles female (slide)
7m. Mouth parts of Amopheles culex male (slide)
7n. Mouth parts of culex female (slide
7o. Mouth parts of Housefly (slide)
7p. Mouth parts of Butterfly (slide)

VIII. Mollusca

8a. Chiton
8b. Pila
8c. Pteredo
8d. Murex
8e. Sepia
8f. Heligo
8g. Octopus
8h. Natutilus
8i. Glochidium larva (slide)

IX. Echinodermata

9a. Asterias
9b. Ophiothrix
9c. Echinus
9d. Clypeaster
9e. Cucumaria
9f. Autedon
9g. Bipiunaria larva (slide)

X. Hemichordata

10a. Balanoglossus
10b. Tornaria larva (slide)

KEY– I Dissections

I. Dissect and display and draw a neat labeled diagram **[5Marks]**

1. Dissect and display the digestive system of prawn with a neat labelled diagram.
2. Dissect and display the appendages of prawn. Draw a neat labelled diagram.
3. Dissect and display the Nervous system of prawn with a neat labeled diagram.
4. Dissect and mount the stato cyst of prawn and cephalic appendages.
5. Dissect and display the cephalic and theraxic appendages in prawn.
6. Dissect and display the given insect mouth parts. Draw a neat labeled diagram and describe each part in brief.
7. Dissect and display the mouth parts of cockroach and draw a neat labelled diagram.
8. Dissect and display the mouth parts of Anopheles mosquito and draw a neat labelled diagram.
9. Dissect and display the mouth parts of Butterfly and draw a neat labelled diagram.
10. Dissect and display the mouth parts of culex mosquito and draw a neat labelled diagram.
11. Dissect and display the mouth parts of Housefly and draw a neat labelled diagram.
12. Dissect and Display the cephalic appendages of prawn. Draw a neat labelled diagram of the same.
13. Dissect and display the thoraxic appendayes of prawn. Draw a neat labelled diagram.
14. Dissect and display the abdominal appendages of prawn. Draw a neat labelled diagram
15. Dissect and display the appendayes of prawn. Draw a neat labelled diagram.
16. Dissect and display the thoraxic and Abdominal Appendages in prawn with a neat labelled diagram.
17. Dissect and display the digestive system of prawn with a neat labelled diagram.
18. Dissect and display the appendages of prawn. Draw a neat labelled diagram.
19. Dissect and display the Nervous system of prawn with a neat labeled diagram.
20. Dissect and mount the stato cyst of prawn and cephalic appendages.

UG SCHEME OF EXAMINATIONS

MATHEMATICS

(CBCS 2016-17)

Paper	Credits	Theory Exam		Practical Exam
		UE	IE	
DSC	4	80 Marks	20 Marks	25 Marks
DSE	3	60 Marks	15 Marks	25 Marks
SEC	2	40 Marks	10 Marks	No Practical exam
GE	2	40 Marks	10 Marks	

Elaborations

DSC – Discipline specific core course

DSE – Discipline specific elective course

SEC – Skill enhancement course

GE – Generic elective

UE – University examination

IE – Internal examination

4 Credit Core (DSC) Paper

University Exam (Theory)

Time: 3 Hrs. Maximum marks: 80

Section – A (5 X 4M = 20 Marks)

Answer any five of the following eight questions. Each carries FOUR marks.

Q1. From Unit 1
Q2. From Unit 1
Q3. From Unit 2
Q4. From Unit 2
Q5. From Unit 3
Q6. From Unit 3
Q7. From Unit 4
Q8. From Unit 4

Section – B (4 X 15M = 60 Marks)

Answer all the following four questions. Each carries FIFTEEN marks.

Q09. (a) or (b) from Unit 1
Q10. (a) or (b) from Unit 2
Q11. (a) or (b) from Unit 3
Q12. (a) or (b) from Unit 4

Internal Exam (Theory)

Maximum marks: 20

Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each. Average of the scores of two exams should be taken into account. Following is the examination pattern.
10 MCQs (multiple choice questions) of half mark each, 10 FIBs (Fill in the Blanks) of half mark each followed by 5 SAQs (short answered questions) of one mark each totaling 15 marks. 5 marks meant for assignment.

University Exam (Practical)

Time: 2 Hrs. Maximum marks: 25

Answer any **four** of the following **eight** questions. Each carries **three** marks totaling 12 marks.

Q1. From Unit 1
Q2. From Unit 1
Q3. From Unit 2
Q4. From Unit 2
Q5. From Unit 3
Q6. From Unit 3
Q7. From Unit 4
Q8. From Unit 4

Viva – 8 marks Record – 5 marks

This has to be set by the university. The question paper should be the same for all the colleges. The same paper with password protected has to be sent to the colleges. ***Four such sets*** are to be prepared .

3 Credit Elective (DSE) Paper

University Exam (Theory)

Time: 2 Hrs. Maximum marks: 60

Section – A (3 X 5M = 15 Marks)

Answer any three of the following six questions. Each carries FIVE marks.

Q1. From Unit 1
Q2. From Unit 1
Q3. From Unit 2
Q4. From Unit 2
Q5. From Unit 3
Q6. From Unit 3

Section – B (3 X 15M = 45 Marks)

Answer all the following three questions. Each carries FIFTEEN marks.

Q7. (a) or (b) from Unit 1
Q8. (a) or (b) from Unit 2
Q9. (a) or (b) from Unit 3

Internal Exam (Theory)

Maximum marks: 15

Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each. Average of the scores of two exams should be taken into account. Following is the examination pattern.
10 MCQs (multiple choice questions) of half mark each, 10 FIBs (Fill in the Blanks) of half mark each followed by 5 SAQs (short answered questions) of one mark each totaling 15 marks.
No assignment is required

University Exam (Practical)

Time: 2 Hrs. Maximum marks: 25

Answer any ***four*** of the following ***six*** questions. Each carries ***three*** marks totaling 12 marks.

Q1. From Unit 1
Q2. From Unit 1
Q3. From Unit 2
Q4. From Unit 2
Q5. From Unit 3
Q6. From Unit 3

Viva – 8 marks Record – 5 marks

This has to be set by the university. The question paper should be the same for all the colleges. The same paper with password protected has to be sent to the colleges. ***Four such sets*** are to be prepared.

Differential Calculus

Practicals Question Bank

UNIT-I

1. If $u=\tan^{-1} x$, prove that

$$(1+x^2)\frac{d^2u}{dx^2}+2x\frac{du}{dx}=0$$

and hence determine the values of the derivatives of u when $x=0$

2. If

$$y=\sin(m\sin^{-1}x),$$ show that

$$(1-x^2)y_{n+2}=(2n+1)xy_{n+1}+(n^2-m^2)y_n$$

and find $y_n(0)$.

3. If U_n denotes the nth derivative of $(Lx+M)/(x^2-2Bx+C)$., prove

$$\frac{x^2-2Bx+C}{(n+1)(n+2)}U_{n+2}+\frac{2(x-B)}{n+1}U_{n+1}+U_n=0.$$

4. If $y=x^2e^x$, then

$$\frac{d^ny}{dx^n}=\frac{1}{2}n(n-1)\frac{d^2y}{dx^2}-n(n-2)\frac{dy}{dx}+\frac{1}{2}(n-1)(n-2)y.$$

5. Determine the intervals in which the function

$$(x^4+6x^3+17x^2+32x+32)e^{-x}$$

is increasing or decreasing.

6. Separate the intervals in which the function

$$(x^2+x+1)/(x^2-x+1)$$

is increasing or decreasing.

7. Show that if $x>0$,

(i) $x-\frac{x^2}{2}<\log(1+x)<x-\frac{x^2}{2(1+x)}$.

(ii) $x-\frac{x^2}{2}+\frac{x^3}{3(1+x)}<\log(1+x)<x-\frac{x^2}{2}+\frac{x^3}{3}$.

8. Prove that

$$e^{ax}\sin bx=bx+abx^2+\frac{3a^2b-b^3}{3!}x^3+\ldots.$$

$$+\frac{(a^2+b^2)^{\frac{1}{2}n}}{n!}x^n\sin\left(n\tan^{-1}\frac{b}{a}\right)+\ldots$$

9. Show that $\cos^2 x=1-x^2+\frac{1}{3}x^4-\frac{2}{45}x^6\ldots\ldots$

10. Show that

$$e^{m\tan^{-1}x}=1+mx+\frac{m^2}{2!}x^2+\frac{m(m^2-2)}{3!}x^3+\frac{m^2(m^2-8)}{4!}x^4+\ldots.$$

UNIT-II

1. Find the radius of curvature at any point on the curves

(i) $y=c\cosh(x/c)$ (*Catenary*).

(ii) $x=a(\cos t+t\sin t)$, $y=a(\sin t-t\cos t)$.

(iii) $x^{\frac{2}{3}}+y^{\frac{2}{3}}=a^{\frac{2}{3}}$. (Astroid)

(iv) $x=(a\cos t)/t$, $y=(a\sin t)/t$.

2. Show that for the curve

$$x=a\cos\theta(1+\sin\theta),\ y=a\sin\theta(1+\cos\theta),$$

the radius of curvature is, a, at the point for which the value of the parameter is $-\pi/4$.

3. Prove that the radius of curvature at the point $(-2a, 2a)$ on the curve $x^3y=a(x^3+y^3)$ is, $-2a$.

4. Show that the radii of curvature of the curve

$$x=ae^{\theta}\ (\sin\theta-\cos\theta),\ y=ae^{\theta}\ (\sin\theta+\cos\theta),$$

and its evolute at corresponding points are equal.

5. Show that the whole length of the evolute of the ellipse

$$x^2/a^2+y^2/b^2=1$$

is $4(a^2/b-b^2/a)$.

6. Show that the whole length of the evolute of the astroid

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

is $12a$.

7. Evaluate the following :

(*i*) $\lim_{x\to 0}\dfrac{xe^x-\log(1+x)}{x^2}$. (*D.U. 1952*) (*ii*) $\lim_{x\to 0}\dfrac{x\cos x-\log(1+x)}{x^2}$. (*D. U. Hons. 1951, P.U. 1957*)

(*iii*) $\lim_{x\to 0}\dfrac{e^x\sin x-x-x^2}{x^3+x\log(1-x)}$. (*D.U. 1953*) (*iv*) $\lim_{x\to 0}\left\{\dfrac{1}{x}-\dfrac{1}{x^2}\log(1+x)\right\}$. (*D.U. 1955*)

8. If the limit of

$$\frac{\sin 2x+a\sin x}{x^3},$$

as x tends to zero, be finite, find the value of a and the limit.

9. Determine the limits of the following functions :

(*i*) $x\log\tan x$, $(x\to 0)$. (*ii*) $x\tan(\pi/2-x)$, $(x\to 0)$.

(*iii*) $(a-x)\tan(\pi x/2a)$, $(x\to 0)$.

10. Determine the limits of the following functions :

i. $\dfrac{e^x-e^{-x}-x}{x^2\sin x}$, $(x\to 0)$. ii. $\dfrac{\log x}{x^3}$, $(x\to\infty)$.

iii. $\dfrac{1+x\cos x-\cosh x-\log(1+x)}{\tan x-x}$, $(x\to 0)$.

iv. $\dfrac{\log(1+x)\log(1-x)-\log(1-x^2)}{x^4}$, $(x\to 0)$.

UNIT-III

1. If $z=xyf(x/y)$, show that

$$x\frac{\partial z}{\partial x}+y\frac{\partial z}{\partial y}=2z.$$

2. If $z(x+y)=x^2+y^2$, show that

$$\left(\frac{\partial z}{\partial x}-\frac{\partial z}{\partial y}\right)^2=4\left(1-\frac{\partial z}{\partial x}-\frac{\partial z}{\partial y}\right).$$

3. If $z=3xy-y^3+(y^2-2x)^{\frac{3}{2}}$, verify that

$$\frac{\partial^2 z}{\partial x\partial y}=\frac{\partial^2 z}{\partial y\partial x}\text{ and }\frac{\partial^2 z}{\partial x^2}\cdot\frac{\partial^2 z}{\partial y^2}=\left(\frac{\partial^2 z}{\partial x\partial y}\right)^2.$$

4. If $z=f(x+ay)+\varphi(x-ay)$, prove that

$$\frac{\partial^2 z}{\partial y^2}=a^2\frac{\partial^2 z}{\partial x^2}.$$

5. If $u=\tan^{-1}\dfrac{x^3+y^3}{x-y}$, find

$$x^2\frac{\partial^2 u}{\partial x^2}+2xy\frac{\partial^2 u}{\partial x\partial y}+y^2\frac{\partial^2 u}{\partial y^2}.$$

6. If $f(x, y)=0$, $\varphi(y, z)=0$, show that

$$\frac{\partial f}{\partial y}\cdot\frac{\partial\varphi}{\partial z}\cdot\frac{dz}{dx}=\frac{\partial f}{\partial x}\cdot\frac{\partial\varphi}{\partial y}.$$

7. If $x\sqrt{(1-y^2)}+y\sqrt{(1-x^2)}=a$, show that

$$\frac{d^2y}{dx^2}=\frac{-a}{(1-x^2)^{\frac{3}{2}}}.$$

8. Given that

$f(x, y)\equiv x^3+y^3-3axy=0$, show that

$$\frac{d^2y}{dx^2}\cdot\frac{d^2x}{dy^2}=\frac{4a^6}{xy(xy-2a^3)^3}.$$

9. If u and v are functions of x and y defined by

$$x=u+e^{-v}\sin u,\ y=v+e^{-v}\cos u,$$

prove that

$$\frac{\partial u}{\partial y}=\frac{\partial v}{\partial x}.$$

10. *If* $H=f(y-z,\ z-x,\ x-y)$; *prove that,*

$$\frac{\partial H}{\partial x}+\frac{\partial H}{\partial y}+\frac{\partial H}{\partial z}=0.$$

UNIT-IV

1. Find the minimum value of $x^2+y^2+z^2$ when
   (*i*) $x+y+z=3a$.
   (*ii*) $xy+yz+zx=3a^2$.
   (*iii*) $xyz=a^3$.
2. Find the extreme value of xy when
   $$x^3+xy+y^3=a^3.$$
3. In a plane triangle, find the maximum value of
   $\cos A\cos B\cos C$.
4. *Find the envelope of the family of semi-cubical parabolas*
   $$y^2-(x+a)^3=0.$$
5. *Find the envelope of the family of ellipses*
   $$x^2/a^2+y^2/b^2=1,$$
   where the two parameter a, b, are connected by the relation
   $$a+b=c\ ;$$
   c, being a constant.
6. *Show that the envelope of a circle whose centre lies on the parabola* $y^2=4ax$ *and which passes through its vertex is the cissoid*
   $$y^2(2a+x)+x^3=0.$$
7. Find the envelope of the family of straight lines $x/a+y/b=1$ where a, b are connected by the relation
   (*i*) $a+b=c$. (*ii*) $a^2+b^2=c^2$. (*iii*) $ab=c^2$,
   c is a constant.
8. *Find the asymptotes of*
   $$x^3+4x^2y+4xy^2+5x^2+15xy+10y^2-2y+1=0.$$
9. *Find the asymptotes of*
   $$x^3+4x^2y+4xy^2+5x^2+15xy+10y^2-2y+1=0.$$
10. Find the asymptotes of the following curves
   i. $xy(x+y)=a(x^2-a^2)$.
   ii. $(x-1)(x-2)(x+y)+x^2+x+1=0$.
   iii. $y^3-x^3+y^2+x^2+y-x+1=0$.

With Effect from the Academic Year 2016-2017

Syllabus for Computer Science

Proposed scheme for **B.Sc.** Programme under **Choice Based Credit System**

Code	Course Title	Course Type	HpW	Credits
	SEMESTER – I			
BS106	Programming in C	DSC-3A	4T+2P=6	4 + 1 =5
	SEMESTER – II			
BS206	Programming in C++	DSC-3B	4T+2P=6	4 + 1 =5
	SEMESTER – III			
BS301	A: SciLab – 1 B: Boolean Algebra	SEC-1	2	2
BS306	Data Structures	DSC-3C	4T+2P=6	4 + 1 =5
	SEMESTER – IV			
BS401	C: SciLab – 2 D: Digital Logic	SEC-2	2	2
BS406	Database Management Systems	DSC-3D	4T+2P=6	4 + 1 =5
	SEMESTER – V			
BS501	Information Technologies -1	GE-1	2	2
BS502	E: Python – 1 F: Computer Organization	SEC-3	2	2
BS505	Programming in Java	DSC-3E	3T+2P=5	3 + 1 =4
BS506	Elective-A: Operating Systems	DSE-1E	3T+2P=5	3 + 1 =4
	Elective-B: Software Engineering	DSE-2E	3T+2P=5	3 + 1 =4
	SEMESTER – VI			
BS601	Information Technologies -2	GE-2	2	2
BS602	G: Python – 2 H: Numerical Computing	SEC-4	2	2
BS605	Computer Networks	DSC-3F	3T+2P=5	3 + 1 =4
BS606	Elective-A: PHP with MySQL	DSE-1F	3T+2P=5	3 + 1 =4
	Elective-B: Web Technologies	DSE-2F	3T+2P=5	3 + 1 =4

BS106 **C Lab**

Practical: 2 Hours/Week Credit: 1

1. Write a program to find the largest two (three) numbers using if and conditional operator.
2. Write a program to print the reverse of a given number.
3. Write a program to print the prime number from 2 to n where n is given by user.
4. Write a program to find the roots of a quadratic equation using switch statement.
5. Write a program to print a triangle of stars as follows (take number of lines from user):

```
*
***
*****
*******
*********
```

6. Write a program to find largest and smallest elements in a given list of numbers.
7. Write a program to find the product of two matrices..
8. Write a program to find the GCD of two numbers using iteration and recursion.
9. Write a program to illustrate use of storage classes.
10. Write a program to demonstrate the call by value and the call by reference concepts.
11. Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
12. Write a program to illustrate use of data type enum.
13. Write a program to demonstrate use of string functions string.h header file.
14. Write a program that opens a file and counts the number of characters in a file.
15. Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
16. Write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

Note:

1. Write the Pseudo Code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

Faculty of Science
B.Sc I[ST] Semester (Practical) Examination
Subject: **Electronics**
QUESTION BANK
W.E.F 2016

Time: 2 Hours Max.Marks :25

Note: Candidate may be asked to strike of any one question (Among allotted 6 experiments for the batch which he does not want to attempt). Any one from the reaming may be allotted to the candidate:

1. Using the CRO , determine the peak voltage and frequency of a sine, square and triangular signal.
2. Obtain Lissagious figures shapes and determine the frequency and phase angle between the waveforms using CRO.
3. Determine all the possible parameters of the waves using CRO.
4. Verify Thevenin's theorem for three different dc circuits.
5. Verify Norton's theorem for three different dc circuits.
6. Verify Maximum power transfer theorem for three different sources.
7. Design and construct a low pass RC circuit and study its frequency response and also verify the theoretical and experimental cut-off frequencies for two different RC circuits.
8. Design and construct a high pass RC circuit and study its frequency response and also verify the theoretical and experimental cut-off frequencies for two different RC circuits
9. Design and study the frequency response of low pass RL circuit.
10. Construct a RC differentiating circuit and study its response to an applied square wave. Measure the time constants of the output signal
11. Construct a RC integrating circuit. Observe the outputs for different wave forms and measure the time constants.
12. Design and study the frequency response of series LCR circuit

FACULTY OF SCIENCE

B.Sc. I-Semester (Practical) Examination, 2016

Subject : MICROBIOLOGY

Paper – I

QUESTION BANK
W.E.F. 2016

Time : 2 Hours **Max. Marks : 25**

Note: Each candidate has to perform one experiment and four spotters.

I. Experiment Question. (12 Marks)

1 A light compound microscope, stage micrometer and ocular micrometer are provided to you. Calibrate the microscope for its measurement in 10 x (low power) and 45 x (high power). Repeat the calibrated values in each magnification.

2 A calibrated microscope fitted with ocular micrometer is provided to you. Prepare a slide of microscopic object (fungal spore or pollen grain) and measure the size of the microscopic object with the help of calibrated ocular micrometer in low power and high power. Report the result. Demonstrate atleast one observation to the examiner.

(Note: Internal examiner concerned is required to pre-calibrate the microscope and give the calibrated values in consultation with the co-examiner).

3 A Bacterial pure culture is provided to you. Prepare smear of the same and stain by differential (Grams) staining method. Observe the microscopic characteristics of stained culture and report the microscopic morphology, arrangement and staining nature. Demonstrate your observation.

4 Stain the given bacterial culture by Endoscope staining and report your observation by demonstrating your observed field.

5 An actively growing Bacterial culture is provided to you. Prepare a smear for capsular staining, perform the staining and report the presence or absence of capsules. Demonstrate your observations.

6 Demonstrate 10 fold serial dilution to obtain a dilution of 10^{-5} of the given sample and inoculate 10^{-3} dilution on the given agar plate using spread plate technique.

II. Specimen for Spotting. (4 Spotters 4x2=8 Marks)

7 Microscope

8 Nutrient Agar slants

9 Nutrient Broth

10 Nutrient plates with streaking for colony isolation

..2

11 Nutrient agar plate with isolated colonies obtained by dilution plating (pour plate or spread plate).

12 Potato dextrose agar with labeling (plate or slant)

13 Autoclave (Specimen)

14 Hot air oven (Specimen)

15 Filtration apparatus

16 Incubator (Specimen)

17 Calorimeter (Specimen)

18 Inoculation loop/Needle (Specimen)

19 Gram positive bacilli (Slide microscopic focusing)

20 Gram positive cocci (Slide microscopic focusing)

21 Gram negative bacilli (Slide microscopic focusing)

22 Nostoc (Slide microscopic focusing)

23 Spirulina (Slide focused)

24 Viable count

III Record and viva **(5 Marks)**

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With Effect from the Academic Year 2016-2017

Syllabus for Computer Applications

Proposed scheme for **B.Sc.** Programme under **Choice Based Credit System**

Code	Course Title	Course Type	HPW	Credits
	SEMESTER – I			
BS106	Programming in C	DSC-3A	4T+2P=6	4 + 1 =5
	SEMESTER – II			
BS206	Programming in C++	DSC-3B	4T+2P=6	4 + 1 =5
	SEMESTER – III			
BS301	A: SciLab – 1 B: Python – 1	SEC-1	2	2
BS306	Relational Database Management Systems	DSC-3C	4T+2P=6	4 + 1 =5
	SEMESTER – IV			
BS401	C: SciLab – 2 D: Python – 2	SEC-2	2	2
BS406	Computer Networks	DSC-3D	4T+2P=6	4 + 1 =5
	SEMESTER – V			
BS501	Information Technologies – 1	GE-1	2	2
BS502	E: R Basics – 1 F: Ruby	SEC-3	2	2
BS505	Multimedia Systems	DSC-3E	3T+2P=5	3 + 1 =4
BS506	Elective-A: Web Technologies	DSE-1E	3T+2P=5	3 + 1 =4
	Elective-B: Visual Programming	DSE-2E	3T+2P=5	3 + 1 =4
	SEMESTER – VI			
BS601	Information Technologies – 2	GE-2	2	2
BS602	G: R Basics – 2 H: Ruby on Rails	SEC-4	2	2
BS605	Mobile Applications	DSC-3F	3T+2P=5	3 + 1 =4
BS606	Elective-A: PHP Programming	DSE-1F	3T+2P=5	3 + 1 =4
	Elective-B: Information Security and Cyber Laws	DSE-2F	3T+2P=5	3 + 1 =4

BS106 **C Lab**

Practical. 2 Hours/Week Credit: 1

1. Write a program to find the largest two numbers using if and conditional operator.
2. Write a program to calculate arithmetic operations of two numbers using switch.
3. Write a program to print the reverse of a given number.
4. Write a program to print whether the given number is a prime or not.
5. Write a program to find largest and smallest elements in a given list of numbers.
6. Write a program to find the sum of two matrices.
7. Write a program to find the product of two matrices.
8. Write a program to print the reverse of a given string.
9. Write a program to find the factorial of a positive integer using iteration and recursion.
10. Write a program to find the GCD of two positive integers using iteration and recursion.
11. Write a program to demonstrate the call by value and the call by reference concepts.
12. Write a program to illustrate the use of Enumeration data type.
13. Write a program to illustrate the use of structure concept.
14. Write a program to illustrate the use of union concept.
15. Write a program to write content into a file and display contents of a file
16. Write a program to copy content of one file into another file and display the content of new file.

Note:

1. Write the Pseudo code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

Faculty of Science

B.Sc. 1 Year (Practical) Examination

Subject : Geology **Paper 1**

Question Bank

Time 2 hours Max Marks 25

I. Describe the physical properties of 6 minerals from the list given below. Also write the chemical composition and occurrence. 6 x 2 = 12 marks.

1. Quartz
2. Jasper
3. Agate
4. Chalcedony
5. Amethyst
6. Orthoclase
7. Microcline
8. Albite
9. Anorthite
10. Tremolite
11. Asbestos
12. Muscovite
13. Biotite
14. Phlogopite
15. Olivine
16. Epidote
17. Garnet
18. Kyanite
19. Sillimanite
20. Andalusite
21. Beryl
22. Zircon
23. Apatite
24. Corundum
25. Talc
26. Gypsum
27. Calcite
28. Fluorspar
29. Serpentine

Prof. M. SRINIVAS
CHAIRMAN
Board of Studies in Geology

II. Mention the diagnostic physical properties of 6 minerals from the list given below.

6 x0.5 = 3 marks

30. Quartz
31. Amethyst
32. Asbestos
33. Muscovite
34. Biotite
35. Garnet
36. Kyanite
37. Garnet
38. Beryl
39. Apatite
40. Talc
41. Calcite
42. Serpentine
43. Gypsum

III. Identify the landforms from the geomorphological chart/ model from the list given below

1 x 5= 5marks

44. Fluvial
45. Glacier
46. Desert
47. Karst

IV Record 5 marks

Prof. M. SRINIVAS
CHAIRMAN
Board of Studies in Geology
University, Hyderabad-7(T.S.)

With Effect from the Academic Year 2016-2017

Syllabus for Computer Applications

Proposed scheme for **B.A.** Programme under **Choice Based Credit System**

Code	Course Title	Course Type	HPW	Credits
	SEMESTER - I			
BA106	,Programming in C	DSC-3A	4T+2P=6	4 + 1 =5
	SEMESTER - II			
BA206	Programming in C++	DSC-3B	4T+2P=6	4 + 1 =5
	SEMESTER - III			
BA301	A: SciLab - 1 B: Python - 1	SEC-1	2	2
BA306	Relational Database Management Systems	DSC-3C	4T+2P=6	4 + 1 =5
	SEMESTER - IV			
BA401	C: SciLab - 2 D: Python - 2	SEC-2	2	2
BA406	Computer Networks	DSC-3D	4T+2P=6	4 + 1 =5
	SEMESTER - V			
BA501	Information Technologies - 1	GE-1	2	2
BA502	E: R Basics - 1 F: Ruby	SEC-3	2	2
BA505	Multimedia Systems	DSC-3E	3T+2P=5	3 + 1 =4
BA506	Elective-A: Web Technologies	DSE-1E	3T+2P=5	3 + 1 =4
	Elective-B: Visual Programming	DSE-2E	3T+2P=5	3 + 1 =4
	SEMESTER - VI			
BA601	Information Technologies - 2	GE-2	2	2
BA602	G: R Basics - 2 H: Ruby on Rails	SEC-4	2	2
BA605	Mobile Applications	DSC-3F	3T+2P=5	3 + 1 =4
BA606	Elective-A: PHP Programming	DSE-1F	3T+2P=5	3 + 1 =4
	Elective-B: Information Security and Cyber Laws	DSE-2F	3T+2P=5	3 + 1 =4

BA106 **C Lab**

Practical: 2 Hours/Week Credit: 1

1. Write a program to find the largest two numbers using if and conditional operator.
2. Write a program to calculate arithmetic operations of two numbers using switch.
3. Write a program to print the reverse of a given number.
4. Write a program to print whether the given number is a prime or not.
5. Write a program to find largest and smallest elements in a given list of numbers.
6. Write a program to find the sum of two matrices.
7. Write a program to find the product of two matrices.
8. Write a program to print the reverse of a given string.
9. Write a program to find the factorial of a positive integer using iteration and recursion.
10. Write a program to find the GCD of two positive integers using iteration and recursion.
11. Write a program to demonstrate the call by value and the call by reference concepts.
12. Write a program to illustrate the use of Enumeration data type.
13. Write a program to illustrate the use of structure concept.
14. Write a program to illustrate the use of union concept.
15. Write a program to write content into a file and display contents of a file
16. Write a program to copy content of one file into another file and display the content of new file.

Note:

1. Write the Pseudo code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

END SEMESTER PRACTICAL EXAMINATION

APPLIED NUTRITION AND PUBLIC HEALTH

SEMESTER 1

NUTRITIONAL BIOCHEMISTRY

DATE: MAX MARKS: 25

TIME: BATCH:

1. Analyse the given sample in the test tube no .....for the presence of carbohydrates / proteins / minerals.
   a) Procedure (10 marks)
   b) Reporting (5 marks)
   c) Result (5 marks)

2. Record (5 marks)

Model Paper Practicals (end of semester)

Duration 2 hours | Max. Marks 25

1. Write the Principles for the following experiments 5 Marks
2. Major Experiment 10 Marks
3. Minor Experiment 5 Marks
4. Viva-Voce and Record 5 Marks

Dr. S. Satyanarayana Singh
Professor
Dept. of Biochemistry
Osmania University,
HYDERABAD-500 007

CHAIRMAN
Board of Studies in Biochemistry
Osmania University,
HYDERABAD-500 007

B.Sc BIOTECHNOLOGY (CBCS)
I- SEMESTER (CELL BIOLOGY & GENETICS)
QUESTION BANK FOR PRACTICALS

Duration-2 hours **Total =25M**

I. MAJOR PRACTICALS **1x10=10M**

1. Preparation of different stages of mitosis (onion root tips)
2. Preparation of different stages of meiosis
3. Preparation of polytene chromosome from drosophila salivary gland
4. Problems on Hardy-Weinberg Equilibrium
5. Problems on epistasis
6. Problems on gene mapping using three point test cross
7. Problems on gene mapping using tetrad analysis

II. MINOR PRACTICALS **1x5 = 5M**

1. Microscopic observation of cells: bacteria / fungi/ plant/ animal
2. Problems on monohybrid and dihybrid ratio in Drosophila
3. Problems on co-dominance
4. Problems on monohybrid and dihybrid ratio in Maize
5. Problems on gene mapping using two point test cross
6. Problems on statistical applications of t-test
7. Problems on statistical applications of chi-square test

III. SPOTTERS (Images/ Figures/ Slides/ Exhibits) **5x1= 5M**

1. Mitochondria
2. Chloroplast
3. Endoplasmic reticulum
4. Golgi complex
5. Fluid mosaic model
6. Sandwich model
7. Polytene chromosome
8. Lampbrush chromosomes
9. Cell cycle phases
10. Stages of Mitosis/ Meiosis
11. Apoptosis
12. Polydactyly
13. Microcephaly
14. Cleft lip
15. ABO blood grouping
16. Drosophila stocks
17. Coat color in rabbits
18. X-linked inheritance with examples
19. Y- linked inheritance with examples
20. Phases of linkage
21. Shell coiling
22. Poky in Neurospora
23. Leaf variegation
24. Mitochondrial inheritance
25. Chloroplast inheritance

IV. RECORD **5M**

H Surekha Rani

Dr. H. SUREKHA RANI
Assistant Professor
Chairperson BOS Biotechnology
Department of Genetics & Biotechnology
Osmania University, Hyderabad-07.

END SEMESTER PRACTICAL EXAMINATION

CLINICAL NUTRITION AND DIETETICS

SEMESTER 1

PHYSIOLOGY AND BIOCHEMISTRY

DATE: MAX MARKS: 25

TIME: BATCH:

1. Identify the blood group in the given / your own blood sample. (5 Marks)
   a) Procedure. (3 Marks)
   b) Result and Conclusion. (2 Marks)

2. Identify the WBC in the given slide (2 Marks)

3. Identify the given slides and spotters and support it with a suitable diagram and explanation. (10 Marks)

   a) Each slide / spotter (2 Marks)
   b) Identification (1/2 Mark)
   c) Diagram (1/2 Mark)
   d) Explanation (1 Mark)

4. Practical record and viva (3 Marks)

B.Sc Genetics I Semester – Question Bank for Practicals

2 hrs **25M**

I - Major Practicals **10M**

1. Problems on Linkage Analysis – 3 test cross with Coincidence and Interference
2. Problems on Dihybrid Crosses with statistical analysis
3. Problems on Trihybrid Crosses with statistical analysis
4. Problems on multiple alleles with statistical analysis
5. Scoring for monohybrid and Dihybrid cross

II - Minor Practicals **5M**

1. Scoring of Drosophila for Dihybrid Cross
2. Screening for Barr body
3. Non allelic interactions – scoring of maize cobs and statistical interpretation.
4. Phenotyping of ABO blood group.
5. Fork method / Punnet square methods – dihybrid / trihybrid cross.

III - Spotters / Exhibits **5M**

A. Images of:

1. Barr body
2. Tetrad Analysis
3. Leaf variegation
4. Is elements
5. Mitochondrial genome
6. Chloroplast genome
7. Shell Coiling in snails
8. Gynandromorphs

B. Figures of:

1. X linked inheritance with examples
2. Y linked inheritance with examples

C. Slides/ Exhibits of:

3. Rh Blood groups – type of alleles
4. Blood group identification
5. White eye Drosophila
6. Vestigial wing Drosophila

D. Cause - Leber's Optic Atrophy

IV - Record **5M**

19/4/2016

B.Sc. I Year II - SEMESTER

Physics Practicals Paper – II :

1. Determine the logarithmic decrement using oscillating disk.
2. Study the oscillations of an oscillating disk
3. Determine Viscosity of water using oscillating disk.
4. Determine the viscosity of a given liquid by oscillating disk
5. Find the frequency of vibration of a bar using Melde's experiment.
6. Find the loop length of a transverse standing wave using Melde's experiment
7. Obtain Lissagious figures from CRO.
8. Find the loop length of longitudinal stationary wave by Melde's experiment
9. Determine the frequency of a tuning fork using volume resonator.
10. Find the end correction of volume resonator bottle.
11. Find the velocity of transverse wave along a stretched string.
12. Study the damped vibrations of a bar pendulum in air.
13. Verify the two laws of a stretched string.
14. Find the velocity of transverse wave in a string
15. Verify perpendicular axis theorem using bifilar suspension.
16. Show that Iz=Ix+Iy in bifilar suspension
17. Find moment of inertia of a block using bifilar suspension in different directions.
18. Find linear mass density of a string by theoretical and experimental method.

Faculty of Science
B.Sc. II Semester (Practical) Examination
Subject: Chemistry; Paper-II
QUESTION BANK
W.E.F. from 2017

Time: 2 hrs
Max.marks: 25

1. Write brief procedure along with group separation table for the identification of the following cations when they are present in a mixture. (5)

Q.No	Cations
1	Cd^{2+}, Ca^{2+}
2	Ag^{+}, NH_4^{+}
3	Al^{3+}, Ba^{2+}
4	Mg^{2+}, NH_4^{+}
5	Ba^{2+}, Mg^{2+}
6	Bi^{3+}, Al^{3+}
7	Cr^{3+}, Sr^{2+}
8	Hg_2^{2+}, NH_4^{+}
9	Fe^{3+}, Mg^{2+}
10	Zn^{2+}, Mg^{2+}
11	Cu^{2+}, Ba^{2+}
12	Mn^{2+}, Mg^{2+}
13	Sb^{3+}, Ca^{2+}