

SAMPLE QUESTION PAPERS

for

H.S.S.L.C. EXAMINATION

2021



**MIZORAM BOARD OF SCHOOL EDUCATION
AIZAWL : 796 012**

Price — ₹ 60/-

FOREWORD

In view of the fact that normal classes for schools could not be conducted due to the COVID – 19 pandemic, the high level Education Committee decided that sample question papers be prepared for the upcoming Board Examinations in line with the initiative taken by the Central Board of Secondary Education (CBSE). As resolved by the Committee, the Mizoram Board of School Education (MBSE) has prepared the sample question papers for the Higher Secondary School Leaving Certificate (HSSLC) Examination, 2021. These papers have been developed purely for the purpose of making students acquainted with the pattern and format of the HSSLC Examination. Hence, students are advised not to rely solely on the Sample Question Papers for the upcoming HSSLC Examination, 2021. Students may note that questions can be set from any portion of the **Reduced Syllabus for HSSLC Examination, 2021** and prepare for the examination accordingly.

**Secretary
Mizoram Board of School Education**

THUHMAHRUAI

COVID – 19 hripui leng avangin sikul rei tak kal theih a ni lova, chuvangin Education Committee sang chuan Central Board of Secondary Education (CBSE) kalphung angin sample question papers siam ni se a ti a. Committee thurel angin Mizoram Board of School Education (MBSE) chuan kum 2021 Higher Secondary School Leaving Certificate (HSSLC) Examination hmachhawn turte tan Sample Question Papers a ti chhuak a. Heng sample question papers te hi zirlaiten exam kalphung leh zawhna rawn chhuah dan an lo hmelhriat theih nan tih a ni a. Amaherawhchu, he Sample Question Papers ngau ngau atang hian Higher Secodanry School Leaving Certificate Examination, 2021 inpuahchah loh tur a ni a. **Reduced Syllabus for Higher Secondary School Leaving Certificate Examination, 2021** huam chhung atangin zawhna engpawh a chhuak thei tih hre chungin inbuatsaihna kalpui ni se.

**Secretary
Mizoram Board of School Education**

MIZORAM BOARD OF SCHOOL EDUCATION
AIZAWL – 796 012

Dated Aizawl, the 22nd December, 2020

NOTIFICATION

No. K.11012/1/2018-MBSE(Acad)/112 : It is hereby notified for the information of all Higher Secondary Schools that Sample Question Papers have been prepared based on the Reduced Syllabus & Scheme of Examinations for Higher Secondary School Leaving Certificate Examination, 2020 – 2021 issued by this office vide Notification No. J. 11016/1/2018-MBSE(Acad)/16 dt. 07.08.2020.

Further, the Weightage to Difficulty Level of Questions has been modified as under for the HSSLC Examination 2021 only.

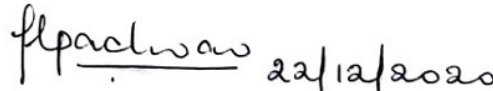
Level of Question	Existing Percentage	Modified Percentage	Mark	
			With practicals	Without practicals
Easy	30	40	28	32
Average	50	40	28	32
Difficult	20	20	14	16
Total	100	100	70	80

The Sample Question Papers are also accessible on the Board's official website www.mbse.edu.in

Sd/- LALTHANGBIKA
Secretary
Mizoram Board of School Education

Memo No. K.11012/1/2018-MBSE(Acad)/112(A) : Dated Aizawl, the 22nd Dec., 2020
Copy to :—

1. The Commissioner & Secretary to Govt. of Mizoram, School Education Department and Controlling Authority of the MBSE, Aizawl.
2. The Director, School Education Department, Govt. of Mizoram, Aizawl.
3. The Principal, Institute of Advanced Study in Education, Aizawl.
4. The Controller of Examinations, MBSE.
5. Regional Officer, MBSE Regional Office, Lunglei.
6. All District Education Officers, Govt. of Mizoram, for information, with a request to circulate to all Higher Secondary Schools under their jurisdiction.
7. System Administrator MBSE, for uploading in the official website.
8. All others concerned.
9. Guard File I.


(SARAH LALENGZAMI PACHUAU)
Director (Academic)
Mizoram Board of School Education



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**ENGLISH
(CORE)
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 hours**

General Instructions :

- (i) *The paper is divided into three sections: A, B & C. All the sections are compulsory.*
- (ii) *Separate instructions are given with each section and question wherever necessary. Read these instructions very carefully and follow them.*
- (iii) *Do not exceed the prescribed word limit while answering the questions.*
- (iv) *Marks for each question are indicated against it.*

SECTION - A : Reading (15 marks)

1. Read the following passage carefully and answer the questions that follow:

While there is no denying that the world loves winners, it is important that you recognize the signs of stress in your behaviour and be healthy enough to enjoy your success. Stress can strike anytime, in a fashion that may leave you unaware of its presence in your life. While a certain amount of pressure is necessary for performance, it is important to be able to recognize your individual limit. For instance, there are some individuals who accept competition in a healthy fashion. There are others who collapse into weeping wrecks before an exam or on comparing marksheets and finding that their friend has scored better.

Stress is a body reaction to any demand or change in its internal and external environment. Whenever there is a change in the external environment such as temperature, pollutants, humidity and working conditions, it leads to stress. In these days of competition when a person makes up his mind to surpass what has been achieved by others, leading to an imbalance between demands and resources, it causes psycho-social stress. It is a part and parcel of everyday life.

Stress has a different meaning, depending on the stage of life you are in. The loss of a toy or a reprimand from the parents might create a stress shock in a child. An adolescent who fails an examination may feel as if everything has been lost and life has no further meaning. In an adult, the loss of his or her companion, job or professional failure may appear as if there is nothing more to be achieved.

Such signs appear in the attitude and behaviour of the individual, as muscle tension in various parts of the body, palpitation and high blood pressure, indigestion and hyper-acidity. Ultimately, the result is self-destructive behaviour such as eating and drinking too much, smoking excessively or relying on tranquilisers. There are other signs of stress such as trembling, shaking, nervous blinking, dryness of throat and mouth and difficulty in swallowing.

The professional under stress behaves as if he is a perfectionist. It leads to depression, lethargy and weakness. Periodic mood shifts also indicate the stress status of students, executives and professionals.

In a study sponsored by the World Health Organization and carried out by Harvard School of Public Health, the global burden of diseases and injury indicated that stress diseases and accidents are going to be the major killers in 2020.

Heart disease and depression - both stress diseases - are going to rank first and second in 2020. Road traffic accidents are going to be the third largest killers. These accidents are also an indicator of psycho-social stress in a fast moving society. Other stress diseases like ulcers, hypertension and sleeplessness have assumed epidemic proportions in modern societies.

A person under stress reacts in different ways and the common ones are flight or fight depending upon the nature of the stress and capabilities of the person. These responses can be elegantly chosen to cope with stress so that stress does not damage the system and become stress.

When a stressful situation crosses the limit peculiar to an individual, it lowers his performance capacity. Frequent crossings of the limit may result in chronic fatigue in which a person feels lethargic, disinterested and is not easily motivated to achieve anything. This may make the person mentally undecided, confused and accident prone as well. Sudden exposure to unnerving stress may also result in loss of memory. Diet, massage, food supplements, herbal medicines, hobbies, relaxation techniques and dance movements are excellent stress busters.

A. Based on your understanding of the passage, answer the following questions: 2x2=4

- (a) What is stress? What factors lead to stress?
- (b) How does a person react under stress?

B. Select the appropriate answer from the given options: 2x1=2

- (a) Stress impairs.....
 - (i) death
 - (ii) the performance of an individual
 - (iii) hypertension
 - (iv) none of the above
- (b) Sudden exposure to unnerving stress may also result in -
 - (i) indigestion
 - (ii) dryness of throat
 - (iii) difficulty in swallowing
 - (iv) loss of memory

C. Find the words in the passage which convey similar meanings as the given words.

Select the appropriate answer from the given options. 2x1=2

- (a) Rebuke
 - (i) competition
 - (ii) reprimand
 - (iii) imbalance
 - (iv) tension
- (b) inactive
 - (i) self-destructive
 - (ii) chronic
 - (iii) lethargic
 - (iv) sudden

2. Read the following passage carefully and answer the questions that follow:

There is nothing more frustrating than when you sit down at your table to study with the most sincere of intentions and instead of being able to finish the task at hand, you find your thoughts wandering. However, there are certain techniques that you can use to enhance your concentration. "Your concentration level depends on a number of factors," says Samuel Ghosh, a social counsellor. "In order to develop your concentration span, it is necessary to examine various facets of your physical and internal environment," he adds.

To begin with, one should attempt to create the physical environment that is conducive to focused thought. Whether it is the radio, TV or your noisy neighbours, identify the factors that make it difficult for you to focus. For instance, if you live in a very noisy neighbourhood, you could try to plan your study hours in a nearby library.

He disagrees with the notion that people can concentrate or study in an environment with distractions like a loud television, blaring music etc. “If you are distracted when you are attempting to focus, your attention and retention powers do not work at optimum levels,” cautions Ghosh. “Not more than two of your senses should be activated at the same time,” she adds. What that means is that music that sets your feet tapping is not the ideal accompaniment to your books.

Also, do not place your study table or desk in front of a window. “While there is no cure for a mind that wants to wander, one should try and provide as little stimulus as possible. Looking out of a window when you are trying to concentrate will invariably send your mind on a tangent,” says Ghosh.

The second important thing, he says, is to establish goals for oneself instead of setting a general target and then trying to accomplish what you can in a haphazard fashion. It is very important to decide what you have to finish in a given span of time. The human mind recognizes fixed goals and targets and appreciates schedules more than random thoughts. Once your thoughts and goals are in line, a focused system will follow.

He recommends that you divide your schedule into study and recreation hours. When you study, choose a mix of subjects that you enjoy and dislike and save the former for the last so that you have something to look forward to. For instance, if you enjoy verbal skill tests more than mathematical problems, then finish Maths first. Not only will you find yourself working harder, you will have a sense of achievement when you wind up.

Try not to sit for more than 40 minutes at a stretch. Take a very short break to make a cup of tea or listen to a song and sit down again. Under no circumstances should one sit for more than one and a half hours. Short breaks build your concentration and refresh your mind. However, be careful not to overdo the relaxation. It may have undesired effects.

More than anything else, do not get disheartened. Concentration is merely a matter of disciplining the mind. It comes with practice and patience and does not take very long to become a habit for life.

(a) On the basis of your reading of the above passage, make notes on it in points only, using abbreviations, wherever necessary. Also suggest a suitable title. 4

(b) Write a summary of the above passage in about 80 words. 3

SECTION - B : Writing (25 marks)

3. You want to rent out your newly constructed house in the heart of the city. Draft an advertisement in not more than 50 words to be published in the classified columns of a local newspaper. Give all the necessary details. You are Thansanga of Khatla, Aizawl. (Word limit : 50 words) 5

4. With the COVID – 19 pandemic on the rise, the need of the hour is adoption of safety measures. As the Principal of Freedom High School, write a notice for your School notice board giving instructions for safety measures to be followed inside the school campus. (Word limit:50Words) 5

5. (a) You are Zothani/Zothana of C - 16, Dawrpui, Aizawl. You have seen an advertisement in a local newspaper inviting applications for the post of English Lecturer in ZM Higher Secondary School, Republic, Aizawl. Write a letter to the Principal, applying for the vacant post. Include your detailed bio-data. 10

OR

(b) You bought a refrigerator two months ago from Silo Sales, Dawrpui, Aizawl. It has developed certain problems regarding its functioning. Cooling has stopped and it is making a lot of noise. Write a letter of complaint to the manager asking him for immediate repair or replacement of the same. You are Hminga of Rahsi Veng, Lunglei. 10

6. (a) Cancer Society of Mizoram recently organised a 'No Tobacco' workshop in your school in order to create awareness regarding the harmfulness of tobacco products among school children. Write a report on the same to be published in the newspaper in about 120 words. 5

OR

(b) On Teacher's Day, the class captains of your school organized a grand celebration to honour the teachers. As the school captain, write a report on the celebration in about 120 words. 5

SECTION – C : Literature (40 marks)

7. Read the following extract and answer the questions that follow: 4x1=4

I. On sour cream walls, donations. Shakespeare's head,
Cloudless at dawn, civilized dome riding all cities.
Belled, flowery, Tyrolese valley. Open-handed map
Awarding the world its world.

- (a) The name of the poem is -
 (i) A Roadside Stand
 (ii) Keeping Quiet
 (iii) An Elementary School Classroom in a Slum
 (iv) Aunt Jennifer's Tigers
- (b) The colour of the classroom walls suggest -
 (i) hope and happiness
 (ii) decaying aspect and pathetic condition
 (iii) anger and frustration
 (iv) determination
- (c) 'Open - handed map' means -
 (i) map of the world drawn by a great artist
 (ii) map of the world which becomes an opening of new opportunities for the slum children
 (iii) map of the world drawn at will by powerful people
 (iv) map of the world which assure the slum children that they are saved from their miserable condition
- (d) The classroom walls have -
 (i) pictures of Shakespeare
 (ii) buildings with domes
 (iii) world maps and beautiful valleys
 (iv) all of the above

OR

II Life is what it is about;
 I want no truck with death.
 If we were not so single-minded
 about keeping our lives moving,
 and for once could do nothing,
 perhaps a huge silence
 might interrupt this sadness

(a) Keeping Quiet is written in blank verse by

- (i) Stephen Spender
- (ii) Pablo Neruda
- (iii) Louis Fischer
- (iv) John Keats

(b) Keeping Quiet is a simple poem about

- (i) greed
- (ii) not speaking in any language
- (iii) self introspection
- (iv) relaxing

(c) Man is 'single minded' about

- (i) being a better human being
- (ii) his own selfish motives
- (iii) helping his brothers
- (iv) total inactivity

(d) The 'sadness' refers to

- (i) man not understanding his own fellow man
- (ii) man not working
- (iii) the killing of whales
- (iv) man not keeping quiet

8. Answer the following questions in about 30 words :

3x2=6

- (a) What is the kind of pain and ache that Kamala Das feels?
- (b) Why does Stephen Spender say that the pictures and maps in the elementary school classroom are meaningless?
- (c) How is a thing of beauty a joy forever?

9. Answer the following questions in about 30 words :

4x2=8

- (a) What was the sudden announcement made by M.Hamel?
- (b) What was the first thing Douglas did to overcome his fear of water?
- (c) Why was the crofter so talkative and friendly with the peddler?
- (d) Why is Raj Kumar Shukla described as being resolute?

10. Choose the correct answer from the given options :

2x1=2

- (a) Saheb was paid..... rupees for working in a tea stall -
 (i) 600
 (ii) 700
 (iii) 800
 (iv) 900
- (b) The back benches in the classroom were occupied by
 (i) weak students
 (ii) Germans
 (iii) senior students
 (iv) village elders

11. Answer *any one* of the following questions in about 100 - 120 words each:

- (a) What is Mukesh's dream? How, in your opinion, can Mukesh realise his dream? 1+4=5

OR

- (b) "His was not a loyalty to abstractions : it was a loyalty to living human beings."
 Explain the statement with reference to Gandhi's actions in Champaran. 5

12. Answer the following questions in about 30 words:

2x2=4

- (a) How does Charley describe himself?
 (b) What 'new phase' had come in Jo?

13. Choose the correct answer from the given options :

6x1=6

- (a) Charley found out that Sam bought.....worth of old-style currency -
 (i) five hundred dollars
 (ii) six hundred dollars
 (iii) seven hundred dollars
 (iv) eight hundred dollars
- (b) "The best thing that we could do would be to put him back in the sea". Who said this and to whom ?
 (i) Hana to Dr.Sadao
 (ii) Dr. Sadao to Hana
 (iii) Dr.Sadao to himself
 (iv) Dr.Sadao to the wounded soldier
- (c) Adults in 'Should Wizard Hit Mommy' signify —
 (i) maturity and experience
 (ii) understanding
 (iii) cruelty
 (iv) indifference
- (d) Bama was a victim of
 (i) gender prejudice
 (ii) violence
 (iii) caste system
 (iv) child abuse

(e) In Zitkala's tribe short hair was worn by

- (i) mourners
- (ii) warriors
- (iii) the elderly
- (iv) paleface

(f) Derry felt the things Mr. Lamb said were —

- (i) peculiar
- (ii) sad
- (iii) funny
- (iv) profound

14. Answer *any one* of the following questions in about 100 - 120 words :

(a) How did Mr.Lamb's meeting with Derry become a turning point in Derry's life? 5

OR

(b) Describe the Grand Central Station at the third level. 5

MIZO
SAMPLE QUESTION PAPER
Full Marks - 80
Time - 3 Hours

Inhriattirna :

- (i) Zawhna zawng zawng hi chhan ngei ngei tur a ni.
(ii) Zawhna tin mark put zat chu a zawnah tarlan zel a ni.
(iii) Chhan dawnin zawhna nambar ziah zel tur a ni.

THEN KHATNA : HLA

1. A dik ber thlang chhuak rawh : 4x1= 4
- (a) T. Zorampela'n "Sual tin chunnu" a tih chu
ruihhlo leh zu / corruption / sum ngainat
- (b) Laithangpuia'n "Theih chang se" a tih chu
zing zin / zing thla zar / fam nghilh
- (c) 'Zingphul' tih awmzia chu
pangpar huan / mitthi khua / tlang pawng / zing kâr
- (d) Hausiampa'n 'mi vailung hlan rawh Lalngo' a tih chu
diar / hmangaihna / puan / thinlung
2. 'Pi pu chhuahtlang hlui' tih hla phuahtuin pi leh pu ten kawtchhuah lungdawha an thiltih thin
a tarlante kha han sawi teh. 2
3. 'Phengphe nunnem'tih hla phuahtu hian eng a thlirin nge 'hringnun hi ka tahpui thin' a tih ?
2
4. 'Kar a hla' tih hla phuahtuin "Min ban di zûn ka tanglaiah" a tih hi eng nge a awmzia ?
Di zûn bânthu a tihte chu engte nge ni le ? 4
5. Phungrual awmzia chu eng nge ni ? Lusun chhungkuate tan phungrual tangkai theihna
kawng hrang hrang leh lusun chhungte tan an thlakhlelhawmzia fiah takin i sawi bawk
dawn nia. 6

THEN HNIHNA : THU

6. A dik ber hmangin a kar awlte dah khat rawh : 4x1 = 4
- (a) Zirlai chi dang zir turin _____ lam chu min panpui ta a.
Police Station / Lung in / Thana
- (b) Sawipuitu mai ni lo _____ hi an lo va hlu em.
dan hre mi / sawisaktu / aiawhtu
- (c) Tiau kan hnua hla phuah thiam mimal a hming kan hriat hmasak chu _____ a ni.
Lianchhiari zai / Mangkhaia zai / Thailungi zai
- (d) Kum _____ ah British in Mizoram an awp ãan.
1891 / 1890 / 1894

7. Heng zawhnate hi chhang rawh : 2×2 = 4
 (a) Dawhtheihna ziaktuin dawhtheihna lan chhuah dan chi dang an ni mai a tih kha han sawi teh.
 (b) Thinrimna hneh dan tha ber in zirlaibuin a tarlan kha eng nge ?
8. C. Thuamluaia'n," Mihring hi min siamtu hian min siam thiam khawp" a tihna chhan kha han sawi teh. 4
9. C. Lalsiamthanga'n Mizo hnam zai leh hla a hauh chhan kha fiah takin han sawi teh. 6

THEN THUMNA : LEMCHAN

10. A dik ber thlang chhuak rawh : 2×1 = 2
 (a) Dodala lung tlang atanga Thangzawra'n lungleng taka a thlir chu :
 Thingsei / Muthi / Sentlang /Neihbawi
 (b) Thangzawra pain Thanghniangi chinchang ngaihven tura amah ngei thawh chhuah a tum hun chu : chapcharah / pawl tlakah / favangah / thalah
11. Thangzawra'n "Phivawk rimchhe pahnih" a tihte kha tute nge ? Eng vangin nge chutianga a tih ? 2
12. Thangzawra'n Lalhniangi nena tlan dun a rawtna chhan sawi la, Lalhniangi'n a chhan dan sawi baw ang che. 4
13. Lemchan thawnthu in zir kha behchhan la, Thangzawra te hun laia Mizo khawtlang nun leh tuna Mizo khawtlang nun danglamna hrang hrangte han sawi teh. 6

THEN LINA : GRAMMAR & COMPOSITION

14. A dik ber thlang chhuak rawh : 2×1 = 2
 (a) Chaw ei nghek nghek suh
 (i) Emphatic adverb (ii) Adjectival adverb (iii) Double adverb
 (b) Puan an pho tiar tuar mai
 (i) Adjectival adverb (ii) Double adverb (iii) Emphatic adverb
15. A hnuai tawng upate zingah hian a thu awmze milpui thlang chhuak rawh. 2×1 = 2
 (a) Inbuatsaih nasa : ralpui phiar taka phiar / riahbuk thing fawm /Rotekawla sepa ang
 (b) Hmel tha : Thlanghar tui luan ang / tumbu thuk thawlh ang / thul khung
16. 'Kel bang liak ang' tih hi a awmzia sawi la, a tifiyah turin thu puah baw rawh. 2
17. Lalmuanpuia, Zonuam veng i ni a. Misualin i dawr an rawk chungchangah Vaivakawn Police Station-a theh luh tur FIR han zia teh. 4
18. A hnuai thupui i duh ber hmang hian Essay han zia teh. Thumal 250 velin i zia dawn nia. 6
 (a) Hripui kara Zonun ze mawi (b) Ram leh hnam humhalh (c) Kan ramin kan mualphopui

THEN NGANA : RAPID READER

19. A dik ber thlang chhuak rawh : 2×1 = 2
- (a) Sava chi khat, a hram chu pi leh pu ten chhiatna thlentu nia an ngaih chu
Chhimbuk / Awingek / Tuitu / Chingpirinu
- (b) Hrangchhuana ipte hrui kha eng mei nge ?
Ngau / Keite/ Zawng / Hauhuk.
20. Buangpui khua ten mihring pawh va ni suh, ramhuai a ni ang an tih kha tu nge ? Eng vangin
nge ramhuai a nih an rin ? 2
21. Khuai lui kha eng lui nge an tih bawk kha ? Lui pawimawh tak a nihna chhan han sawi teh. 2
22. Hrangchhuana'n Chawngmawii a rim dawna a kensak thinte zinga pali han sawi teh. 2
23. Chawngmawii pianhmang leh mizia han sawi teh . 2
24. Hrangchhuana lu a nu leh pa hnena va dahtu kha tu nge ? A va kalpui dan kha fiah takin han
sawi teh. 4
-

POLITICAL SCIENCE
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 Hours

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks allotted to each question are indicated against it.
- (iii) Please write down the number of the question before attempting it.

1. Choose the correct answer : 4x1 = 4
- (a) Which among the following statements does not reflect the objectives of NAM?
- (i) Enabling newly decolonised countries to pursue independent policies
 - (ii) Not joining any military alliances
 - (iii) Following a policy of ‘neutrality’ on global issues
 - (iv) Focus on elimination of global economic inequalities
- (b) WTO is serving as the successor to which of the following organisations?
- (i) General Agreement on Trade and Tariff
 - (ii) General Arrangement on Trade and Tariff
 - (iii) World Health Organisation
 - (iv) UN Development Programme
- (c) Find the odd one out in the context of proclamation of Emergency:
- (i) The call for ‘Total Revolution’
 - (ii) The Railway Strike of 1974
 - (iii) The Naxalite Movement
 - (iv) The Allahabad High Court verdict
- (d) Which among the following statements about the Partition is incorrect?
- (i) Partition of India was the outcome of the “two-nation theory”
 - (ii) Punjab and Bengal were the two provinces divided on the basis of religion
 - (iii) East Pakistan and West Pakistan were not contiguous
 - (iv) The scheme of Partition included a plan for transfer of population across the border

2. Fill in the blanks with the correct answer : 4x1 = 4
- (a) party dominated the Soviet Union's political system.
(Democrat / Communist / Republican / Socialist)
- (b) plan influenced the establishment of the organisation for European Economic Co-operation in 1948. (Marshall / Five year / Economic / Socialist)
- (c) is the present UN Secretary-General.
(Banki Moon / Antonio Guterres / Kofi Annan / George Bush)
- (d) The party that won the second largest number of Lok Sabha seats in the first election was the (Praja Socialist Party/Bharatiya Jana Sangh/Communist Party of India/Bharatiya Janata Party)
3. Write True or False against each of these statements : 4x1 = 4
- (a) All security and peace related issues are dealt within the Security Council.
- (b) Many opposition leaders were arrested during the emergency.
- (c) Non-alignment allowed India to gain assistance both from USA and USSR.
- (d) The Treaty of Peace and Friendship in 1971 was the result of India's closeness to USA.
4. Match the following : 4x1 = 4
- | A | B |
|--|--|
| (a) Operation Desert Storm | (1) Preservation of international peace and security |
| (b) Security Council | (2) Communist Party of India |
| (c) Mapping of boundaries on religious Grounds | (3) First Gulf War |
| (d) S.A. Dange | (4) India and Pakistan |
5. Why did the superpowers have military alliances with smaller countries ?
Give *two* reasons. 2
6. Write *two* constraints on American hegemony today. 2
7. Bring out *two* major differences between the challenge of nation building for eastern and western regions of the country at the time of independence. 2
8. What was the task of the State Reorganisation Commission ? What was its salient recommendation ? 2
9. Bring out *two* differences each between Socialist Party and the Communist Party and between Bharatiya Jana Sangh and Swatantra Party. 2
10. Why did Anandpur Sahib Resolution become controversial ? 2
11. NAM was considered a third option by Third World countries. How did this option benefit their growth during the peak of the Cold War ? 4
12. Write *four* objectives of establishing regional organisations. 4
13. As a citizen of India, how would you support India's candidature for the permanent membership of the Security Council ? Justify your proposal with *four* points. 4
14. How does political leadership of a nation affect its foreign policy ? Explain this with the help of examples from India's foreign policy. 4

15. Write a paragraph on 'India's Nuclear policy'. 4
16. (a) The Cold War produced an arms race as well as arms control. What were the reasons for both these developments ? 8
- OR**
- (b) What was Shock Therapy ? Was this the best way to make a transition from communism to capitalism ? 8
17. (a) "If big and resourceful states cannot resist the U.S. hegemony, it is unrealistic to expect much smaller and weaker non-state actors to offer any resistance". Examine the proposition and give your opinion 8
- OR**
- (b) How did the European countries resolve their post-second war problems ? Briefly outline the attempts that led to the formation of the European Union. 8
18. (a) It is said that the nation is, to a large extent, an imagined community held together by common beliefs, history, political aspirations and imaginations. Identify features that make India a nation. 8
- OR**
- (b) In what sense was the Congress an ideological coalition ? Mention various ideological currents. 8
19. (a) The 1977 election, for the first time, saw the opposition coming into power at the centre. What would you consider as the reasons for this development ? 8
- OR**
- (b) What are the various positions on the issue of regional autonomy for Kashmir ? Which of these do you think are justifiable ? Give reasons for your answer. 8
-

HISTORY
SAMPLE QUESTION PAPER
Full Marks – 80
Time - 3 Hours

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks allotted to each question are indicated against it.
- (iii) Attach the map with the answer script.
- (iv) Please write down the number of question before attempting it.

1. Choose the correct answer from the options given below :

10x1= 10

- (a) The Harappan Seal was made of a stone called
 - (i) Flint
 - (ii) Steatite
 - (iii) Chert
 - (iv) Granite
- (b) The Harappan site which was devoted to craft production was
 - (i) Banawali
 - (ii) Chanhudaro
 - (iii) Kot Diji
 - (iv) Rangpur
- (c) The author of Arthashastra
 - (i) Kalhana
 - (ii) Kalidasa
 - (iii) Kautilya
 - (iv) Banabhatta
- (d) Which of these rulers followed endogamy ?
 - (i) Satavahanas
 - (ii) Sakyas
 - (iii) Mauryas
 - (iv) Kushanas
- (e) The earliest Bhakti Movements of Tamil Nadu were led by
 - (i) Saguna and Naguna
 - (ii) Alvars and Nayanars
 - (iii) Kabir and Guru Nanak
 - (iv) Mirabai and Ravidas
- (f) The Ruins of Hampi were brought to light in 1800 by
 - (i) Alexander Greenlaw
 - (ii) Fernao Nuniz
 - (iii) Duarte Barbosa
 - (iv) Colonel Colin Mackenzie
- (g) The author of Ain-i-Akbari
 - (i) Al-Biruni
 - (ii) Abul Fazl
 - (iii) Colonel Colin Mackenzie
 - (iv) Fakir Aziao-Din
- (h) The Battle of Talikota was fought in
 - (i) 1555
 - (ii) 1557
 - (iii) 1560
 - (iv) 1565
- (i) Jhansi and Satara were annexed by the British through
 - (i) Doctrine of Lapse
 - (ii) Subsidiary Alliance
 - (iii) Permanent Settlement
 - (iv) Mahalwari Settlement
- (j) Jallianwala Bagh incident occurred in
 - (i) March 1919 at Meerut
 - (ii) March 1919 at Calcutta
 - (iii) April 1919 at Amritsar
 - (iv) April 1919 at Bombay

2. Fill in the blanks by choosing the correct answer from the brackets : 6x1 = 6
- (a) Epigraphy is the study of _____. (coins / inscriptions)
- (b) Duryodhana and his brothers were known as _____. (Kauravas / Pandavas)
- (c) The word 'zimmi' was derived from the Arabic word 'zimma' which means _____.
(protection / submission)
- (d) A form of tribute collected by the Mughal state was called _____ (Zabt / Peshkash)
- (e) The British became the ruler of Bengal after the decisive victory in the battle of Plassey in _____. (1757 / 1775)
- (f) The 'Purna Swaraj' was accepted as Congress goal at the Lahore Congress in December _____. (1929 / 1930)
3. Answer the following questions in two or more sentences : 8x2 = 16
- (a) How do seals and sealings facilitate long distance communication?
- (b) What were the sources to reconstruct the history of the Mauryan Empire?
- (c) Explain two strategies evolved by Brahmanas to enforce the norms of the Varna order.
- (d) In which two categories did historians often classify Bhakti tradition ?
- (e) What is 'Sharia' ?
- (f) Who was Mirabai ?
- (g) What is Sunset Law ?
- (h) What was the Rowlatt Act ?
4. (a) Which state emerged as the strongest among the Sixteen Mahajanapadas during the 6th to 4th century BCE ? What were the reasons ? 1+2 = 3
- OR**
- (b) Explain why patriliney may have been particularly important among elite families. 3
5. (a) Explain what historians meant by the integration of cults. 3
- OR**
- (b) How were the water requirements of Vijayanagara met? 3
6. (a) Describe the major teachings of Baba Guru Nanak. 3
- OR**
- (b) What are the problems in using the Ain as a source for reconstructing agrarian history? 3
7. (a) What do you think were the advantages and disadvantages of enclosing agricultural land within the fortified area of the city ? 3
- OR**
- (b) Examine the evidence that suggests that land revenue was important for the Mughal fiscal system. 3
8. (a) Why was the Jotedar a powerful figure in many areas of rural Bengal ? 3
- OR**
- (b) How did the Paharias respond to the coming of outsiders ? 3
9. (a) What steps did the British take to quell the uprising of 1857 ? 3
- OR**
- (b) What were the factors which started the Non-Cooperation movement of 1920 ? 3

10. (a) Describe some of the distinctive features of Mohenjodaro. 5
OR
(b) Briefly explain how archaeologists reconstruct the past. 5
11. (a) Describe in brief the notions of Kingship that developed in the post- Mauryan period. 5
OR
(b) How important were gender differences in early societies? Give reasons for your answer. 3+2 = 5
12. (a) What were the major beliefs and practices that characterised Sufism ? 5
OR
(b) How were the lives of forest dwellers transformed in the 16th and 17th centuries ? 5
13. (a) In what way was the livelihood of the Paharias different from that of the Santhals ? 5
OR
(b) What were the military and religious causes that led to the revolt of 1857 ? 5
14. (a) Briefly describe the developments which preceded the Civil Disobedience Movement of 1930. 5
OR
(b) In what way did Mahatma Gandhi transform the nature of the national movement ? 5
15. (a) On the given outline map of India, indicate five mature Harappan sites. 5
OR
(b) On the given outline map of India, locate any five states of South India during the 14th to 18th century. 5
-

SOCIOLOGY
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 Hours

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks for each question are indicated against it.
- (iii) Please write down the number of the question before attempting it.

1. Choose the correct answer from the options given below : 6×1 = 6
- (a) ‘The Wealth of Nations’ was written by _____ .
 - (i) Max Weber
 - (ii) Adam Smith
 - (iii) Alfred Gell
 - (iv) Karl Marx
 - (b) Patterns of unequal access to social resources are commonly called _____ .
 - (i) Social inequality
 - (ii) economic inequality
 - (iii) political inequality
 - (iv) gender inequality
 - (c) Fort William was established by the river for defensive purposes in _____ .
 - (i) 1696
 - (ii) 1697
 - (iii) 1698
 - (iv) 1699
 - (d) The term ‘sanskritisation’ was coined by _____ .
 - (i) AR Desai
 - (ii) MN Srinivas
 - (iii) DP Mukherjee
 - (iv) KL Sharma
 - (e) Migrant workers have been termed ‘footloose labour’ by _____ .
 - (i) Fredrick Taylor
 - (ii) Herbert Spencer
 - (iii) Jan Bremen
 - (iv) Max Weber
 - (f) TNCs stands for _____ .
 - (i) Tele Network Corporations
 - (ii) Transnational Corporations
 - (iii) Times National Corporations
 - (iv) Tata National Corporations
2. State whether the following statements are True or False : 5×1 = 5
- (a) India has a very young population.
 - (b) Prejudices are often grounded in stereotypes.
 - (c) The initial impact of British Industrialization led to more people moving away from agriculture.
 - (d) Modern organisations like the Brahma Samaj was formed in Punjab.
 - (e) Srinivas suggested that while ' lower caste' sought to be sanskritised 'upper caste' sought to be westernised.

3. Fill in the blanks with the correct answer from the given options : 5×1 = 5
- (a) The American Census of _____ was the first modern census.
 (i) 1710 (ii) 1791
 (iii) 1709 (iv) 1790
- (b) The instrument of exchange and credit was the _____, or bill of exchange.
 (i) hundi (ii) jajmani
 (iii) haat (iv) coin
- (c) If _____ became the dominant economic system, nation states became the dominant political form.
 (i) industrialization (ii) urbanization
 (iii) capitalism (iv) colonialism
- (d) The basic task of a _____ is to control workers and get more work out of them.
 (i) Director (ii) Chairman
 (iii) Secretary (iv) Manager
- (e) Home-based work was mainly done by _____ and children.
 (i) women (ii) men
 (iii) parents (iv) youth
4. What is meant by sex- ratio ? 2
5. What is marketization ? 2
6. Define commodification. 2
7. What is social exclusion ? 2
8. What is Raiyatwari System of land settlement ? 2
9. Define Scientific management. 2
10. What is globalization ? 2
11. Answer *any two* from the following questions :
- (a) Explain the basic argument of the theory of demographic transition. Why is the transition period associated with a 'population explosion' ? 4
- (b) Explain why the birth rate is relatively slow to fall while the death rate declines much faster. 4
- (c) Differentiate between matriliney and matriarchy. 4
- (d) What are the defining features of the caste system ? 4
12. How has colonialism impacted our lives ? 4
13. Write short notes on caste and secularisation. 4
14. There are direct linkages between the situation of agricultural workers and their lack of upward socio-economic mobility. Name some of them. 4

15. Briefly explain the impact of globalisation on culture. 4
16. Write short notes on Tribal movements. 4
17. Distinguish between Peasant and New Farmers movement. 4
18. (a) Explain the role of the ideas of separation and hierarchy in the caste system. 6
- OR**
- (b) In what sense has caste become relatively 'invisible' for the urban upper caste ? 6
19. (a) How have caste and kin networks contributed to the success of a business ? 6
- OR**
- (b) In what ways did the Indian economy change after the coming of colonialism ? 6
20. (a) What are the major issues of concern to Adivasis today ? 6
- OR**
- (b) What is the relationship between caste and economic inequality ? 6
-

EDUCATION
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 hours

General Instructions :

- (i) All questions are compulsory.
(ii) Marks allotted to each question are indicated against it.
(iii) Please write down the number of the question before attempting it.

1. Choose the most appropriate response from the choices provided under each of the following: 8x1=8
- a) The latest concept of psychology is in terms of
i) soul ii) consciousness
iii) behaviour iv) mind
- b) The stimulus – response theory was developed by
i) Kohler ii) Terman
iii) E.L. Thorndike iv) Pavlov
- c) While calculating the IQ of a person, C.A. is kept in the
i) Numerator ii) Denominator
iii) Reserve iv) Either in (i) or (ii)
- d) The word ‘Interest’ in Latin means
i) to grow ii) to talk about
iii) thinking of iv) it matters
- e) The type of counselling which does not employ any specific technique is
i) Permissive Counselling ii) Directive Counselling
iii) Non-directive Counselling iv) Eclectic Counselling
- f) Which one of the following is not the cause of forgetting?
i) lack of interest ii) lapse of time
iii) learning by doing iv) emotional disturbances
- g) Development is
i) Complex ii) Unnatural
iii) Discontinuous iv) Continuous
- h) Which of the following is not the function of mental hygiene?
i) Preventive ii) Coersive
iii) Curative iv) Adjustive
2. State whether the following statements are True or False : 4x1=4
- a) Insightful learning is associated with Ivan Pavlov.
b) Personality includes physical, mental and emotional traits.
c) Counselling is possible without communication.
d) The relationship between Education and Psychology is irrelevant.
3. Fill in the blanks. 4x1=4
- a) The term IQ was put into wide practice by _____ (Stern/Terman)
b) An earlier view of learning regarded the teacher as a _____
(dispenser of information/passive absorber)
c) Delay and inaccuracy should be regarded as the chief marks of _____
(memory/forgetting)
d) Interest in a particular object leads a person to _____ it.(attend to/select)
4. What is social heredity? 2
5. What does ‘guidance in education’ mean? 2

- | | | |
|-----|--|-------|
| 6. | Define the term mental health. | 2 |
| 7. | What is memory? | 2 |
| 8. | What is the difference between growth and development? | 2 |
| 9. | What is environment? | 2 |
| 10. | Explain the changing concept of psychology. | 4 |
| 11. | Explain physical and mental environment. | 4 |
| 12. | Discuss, in brief, the various factors which affect memory. | 4 |
| 13. | Explain briefly <i>any four</i> characteristics of attention. | 4 |
| 14. | Highlight the differences between guidance and counselling. | 4 |
| 15. | Explain briefly how educational psychology is viewed as a social science and a practical science. | 4 |
| 16. | Explain the special characteristics of adolescence period. | 7 |
| 17. | Explain learning with one definition. Explain with experimental evidence, the theory of learning by trial and error. | 3+4=7 |
| 18. | Explain personality with one definition. How does Jung classify personality? Explain. | 3+4=7 |
| 19. | (a) What is mental hygiene? Enlist and briefly explain the characteristics of a mentally healthy person. | 2+5=7 |
| | OR | |
| | (b) What is adjustment mechanism? Explain <i>any five</i> adjustment mechanisms. | 2+5=7 |
-

PSYCHOLOGY(Theory)
SAMPLE QUESTION PAPER
Full Marks – 70
Time – 3 Hours

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks for each question are indicated against it.
- (iii) Please write down the number of the question before attempting it.

PART – A

1. Fill in the blanks with the correct alternatives from the given options : 7×1=7
 - a) Persons having IQ below ____ are judged to have sub-average intelligence.
(70/80)
 - b) _____ refers to special abilities in a particular activity. (Attitude / Aptitude)
 - c) Sixteen Personality Factor Questionnaire (16 PF) was developed by _____
(Allport / Cattell)
 - d) ____ results from the blocking of needs and motives by something or someone.
(Frustration / Conflict)
 - e) RET was formulated by ____ (Albert Ellis / Aaron Beck)
 - f) The word logos is derived from a ____ word.(Latin / Greek)
 - g) When groups work together to achieve shared goals, we refer to it as _____
(competition / cooperation)

2. State whether the following statements are True or False: 7×1=7
 - a) Interest is a preference for a particular activity.
 - b) The reaction to external stressors is called strain.
 - c) Hardiness consists of commitment, control and cognition.
 - d) People suffering from depression become euphoric, extremely active and easily distractable.
 - e) The special relationship between the therapist and the client is known as unconditional positive regard.
 - f) Roles are socially defined expectations that individuals in a given situation are expected to fulfil.
 - g) General skills include personal as well as intellectual skills.

PART – B

3. Define individual differences. 2
4. Briefly explain Jung's classification of personality types. 2
5. What are the *four* common features found in abnormality ? 2
6. Mention *any four* goals of psychotherapy. 2
7. Define group. 2
8. What is interview? 2

PART – C

- | | | |
|-----|--|---|
| 9. | State <i>any six</i> characteristics of gifted children. | 3 |
| 10. | Explain the <i>three</i> psychological techniques of self control. | 3 |
| 11. | What coping strategies would you suggest to your friends? | 3 |
| 12. | Explain the <i>two</i> major approaches to observation. | 3 |

PART – D

- | | | |
|-----|--|---|
| 13. | Define intelligence. Explain verbal, non-verbal and performance tests of intelligence. | 4 |
| 14. | Describe the <i>four</i> effects of stress on psychological functioning and health. | 4 |
| 15. | Write in detail the <i>four</i> types of somatoform disorders. | 4 |
| 16. | Discuss the <i>four</i> factors contributing to healing in psychotherapy. | 4 |
| 17. | a) Explain <i>any four</i> reasons why people join groups. | 4 |

OR

- | | | |
|----|--|---|
| b) | Explain Tuckman's stages of group formation. | 4 |
|----|--|---|

PART – E

- | | | |
|-----|--|---|
| 18. | a) Define personality. Describe behavioural analysis used in personality assessment. | 6 |
|-----|--|---|

OR

- | | | |
|-----|---|---|
| b) | What are Projective Techniques? Explain the Rorschach Inkblot Test and TAT. | 6 |
| 19. | Define anxiety. Explain the major anxiety disorders and their symptoms. | 6 |

COMPUTER SCIENCE
(Theory)
SAMPLE QUESTION PAPER
Full Marks - 70
Time : 3 hours

General instructions:

- (i) All questions are compulsory.
(ii) Programming Language: C++.
(iii) Figures in the margin indicate marks.

1. Choose the correct answer: 5×1=5
- (a) If $n = 9$ and $m = 2$ then what will be the output of the expression $n\%m$ in C++?
(i) 4 (ii) 9 (iii) 1 (iv) 8
- (b) How many elements can be stored in an array `arr[5]`?
(i) 6 (ii) 5 (iii) 4 (iv) 1
- (c) Which of the following is a DDL command?
(i) CREATE TABLE (ii) insertion
(iii) SELECT (iv) None of the above
- (d) What do you call the rule “if $0.1 = 0$ then $1+0 = 1$ ”?
(i) De Morgan’s theorem (ii) Distributive law
(iii) Associative law (iv) Principle of duality
- (e) The full form of URL is –
(i) Uniform Resource Locator (ii) Universal Resource Locator
(iii) Universal Resource Language (iv) Uniform Resource Language.
2. Fill in the blanks: 5×1=5
- (a) Member function of a class can be defined outside a class by using _____. (scope resolution operator/friend function/dot operator)
- (b) A stack is a linear structure implemented in _____ manner. (FIFO/underflow/LIFO)
- (c) The number of rows in a relation is known as _____. (tuple/cardinality/attribute)
- (d) The _____ gate is a gate with only one input signal and one output signal.
(OR/NOT/AND)
- (e) A device that connects dissimilar network is called _____. (Hubs/Gateway/Switch)
3. State whether the following statements are **True** or **False**: 4×1=4
- (a) C++ considers strings as single dimension character arrays.
- (b) Simple data structures are normally built from the primitive data types.
- (c) The full form of DML is “Data Model Language”.
- (d) The dual of $X+X'Y$ is $X'.$ ($X+Y'$)

4. Answer the following questions :

- (a) Why is main function special in C++?
- (b) What are the advantages of OOP?
- (c) (i) Differentiate between actual parameters and formal parameters with a suitable C++ code.

OR

- (ii) Differentiate between implicit type conversion and explicit type conversion.
- (d) What is a constructor? What are the types of constructor?
- (e) Is it possible to overload a constructor? If yes how?
- (f) (i) When will you make a function inline and why?

OR

- (ii) What is the significance of access specifiers in a class?
- (g) How is computer memory allotted for a two – dimensional array?
- (h) Define the term data structure and state its significance.
- (i) (i) Explain the types of Data Structure.

OR

- (ii) Explain the operations on Data Structure.
- (j) What does '\0' signify in array? Explain with example.
- (k) What are the various data models available for database systems?
- (l) (i) What is meant by tautology and fallacy?

OR

- (ii) What is meant by Minterm and Maxterm?
- (m) How do repeaters differ from routers in terms of functionality?

5. Answer the following questions in detail:

10×3=30

- (a) What is the difference between call by value and call by reference in a user defined function in C++? Give an example in C++ to illustrate both.
- (b) Discuss the concepts of Object Oriented Programming Language. How are these implemented in software terms in C++?
- (c) Illustrate the concept of function overloading with the help of an example.
- (d) (i) What is copy constructor? Explain with an example.

OR

- (ii) Define a class student with the following specifications:

private members of the class student

admno integer,

sname 20 characters,

eng, math, science float,

total float,

ctotal() A function to calculate eng + math + science.

Public member functions of the class student

takedata() A function to accept values for sname, eng, math, science and invoke ctotal() to calculate total.

Showdata() A function to display all the data members on the screen.

(e) Answer the questions (i) to (iii) based on the following code:

```
class regular
{
    char schoolcode[10];
public:
    void irregular();
    void outregular();
};
class distance
{
    char studycentrecode[5];
public:
    void indistance();
    void outdistance();
};
class course: public regular, private distance
{
    char code[5];
    float fees;
public:
    void incourse();
    void outcourse();
};
```

- (i) Which type of inheritance is shown in the above example?
- (ii) Write names of all the members accessible through an object of class course.
- (iii) Is the function irregular() accessible inside the function indistance()? Justify your answer.

(f) (i) An array X[7][20] is stored in the memory with each element requiring 2 bytes of storage. If the base address of array is 2000, calculate the location of X[3][5] when the array X is stored in column major order.

OR

(ii) An array G[50][20] is stored in the memory along the row with each of its element occupying 8 bytes. Find out the location of G[10][15], if G[0][0] is stored at 4200.

(g) Consider the following table:

Table: DOCTOR

ID	NAME	DEPT	SEX	EXPERIENCE
101	John	ENT	M	12
104	Smith	ORTHOPEDIC	M	5
107	George	CARDIOLOGY	M	10
114	Lara	SKIN	F	3
117	Lucy	ENT	F	3
118	Joseph	MEDICINE	M	15

Write SQL command for (i) to (iii)

- (i) To show NAME, DEPT and EXPERIENCE of Doctors.
 - (ii) To display lists of doctors in ascending order of their ID.
 - (iii) To show the doctors from ENT department only.
- (h) (i) State and prove the De Morgan's theorem (*any one*) algebraically.

OR

- (ii) Draw the logic circuit diagram for $X' \cdot (Y' + Z')$
- (i) What are the advantages of E-mail and World Wide Web services provided by INTERNET?
- (j) Discuss the various types of networks.

HOME SCIENCE
SAMPLE QUESTION PAPER

(Theory)

Full Marks-70

Time – 3 Hours

General Instructions :

- (i) All questions are compulsory. Marks are indicated against each question.
- (ii) Answers should be brief and to the point.
- (iii) Write down the number of the question before attempting it.

1. Choose the most appropriate response from the choices provided under each of the following : 5×1=5
- (a) A substance which dissociates in aqueous solution to give hydroxyl ions –
- (i) Base
 - (ii) Acid
 - (iii) Atom
 - (iv) Molecules
- (b) BCG vaccine provides protection against –
- (i) Measles
 - (ii) Polio
 - (iii) Tetanus
 - (iv) Tuberculosis
- (c) Ability of an individual to resist disease and death –
- (i) Incubation period
 - (ii) Immunity
 - (iii) Immunisation
 - (iv) Antibiotics
- (d) An increase in the body temperature above normal is generally referred to as
- (i) Diarrhoea
 - (ii) Fever
 - (iii) Mumps
 - (iv) Diphtheria
- (e) The apparel of mechanic –
- (i) Wet suit
 - (ii) Lab coat
 - (iii) Boiler suit
 - (iv) Space suit
2. State whether the following statements are **True** or **False** : 5×1=5
- (a) The compounds which contain only hydrogen are called hydrocarbons.
 - (b) Qualitative modification of diet refers to the increase or decrease of certain nutrients or calories.
 - (c) A consumer is a person who buys goods, material/services to satisfy wants.
 - (d) Specific clothing is a must at certain places.
 - (e) Quality refers to outward look of a fabric.

3. Fill in the blanks. 4×1=4
- (a) The number of gram equivalent of the solute dissolved per litre of the solution is called _____. (molarity/normality/molarity/elements)
- (b) _____ is always done to cheat the consumer and make more profit.
(Adulterants/Incidental adulteration/ Intentional adulteration/ Unintentional adulteration)
- (c) _____ and elderly folks wear sedate, elegant, simple, quality fabric dresses.
(Baby/Children/Adolescent/Adult)
- (d) _____ of a fabric is the good appearance that is desired in a fabric which should be lasting.
(Appearance/Durability/Comfort/Purpose)
4. Differentiate between deaf and hard of hearing. 2
5. Write *two* classifications of organic chemistry. 2
6. Write the reaction between acid and base. 2
7. State *two* important points you would consider while buying clothes for an adolescent boy. 2
8. What are the *two* advantages of maintaining household records? 2
9. Explain 'filtration' as a method for making water safe for drinking. 2
10. Present *six* considerations to be kept in mind while planning meals for a diarrhoea patient. 3
11. Write *three* properties of alkynes. 3
12. Point out *any six* qualities of safe drinking water. 3
13. What are the *three* advantages of breastfeeding for infants? 3
14. Write *any three* importance and need of supplementing family income. 3
15. List *any three* points each of desirable and undesirable qualities of silk. 3
16. What are the different types of disabilities? 3
17. Give a brief account of the advantages of consumer education. 3
18. Explain in brief *any five* principles of meal planning. 5
19. Write the salient features of Consumer Protection Act (COPRA) in 1986. 5
20. Give a brief account of the facilities provided by an ideal crèche. 5
21. Explain briefly the principles of design. 5
-

GEOGRAPHY
(Theory)
SAMPLE QUESTION PAPER
Full Marks- 70
Time – 3 Hours

General Instructions:

- (i) All questions are compulsory.
- (ii) Please write down the number of the question before attempting it.
- (iii) Marks for each question are indicated against it.

1. Choose the correct answer from the alternatives given below: 5×1=5
- (a) Gathering is
 - (i) Collection of forest products of various kinds to fulfill human needs
 - (ii) Collection of minerals from the forests to fulfill human basic needs
 - (iii) Both (i) and (ii)
 - (iv) None of these.
 - (b) The lowest number of population of a settlement in order to call it a City is
 - (i) 10,00,000
 - (ii) 5,000
 - (iii) 1,00,000
 - (iv) 1,00,00,000
 - (c) If a family moves to the nearby town within the state to stay there forever, the migration is
 - (i) Interstate migration
 - (ii) Emigration
 - (iii) Immigration
 - (iv) Intrastate migration
 - (d) The main arteries of inland transport system in India is
 - (i) Roadways
 - (ii) Airways
 - (iii) Inland waterways
 - (iv) Railways

- (e) Package technology or Green revolution technology is not applicable in hilly areas because of
- (i) Non availability of technically fit labour
 - (ii) Scarcity of water
 - (iii) Absence of seeds
 - (iv) Absence of agricultural machinery

2. State whether the following statements are **True** or **False**: 5×1=5

- (a) Non-Conventional sources of energy are those things which can be used for energy generation in the future.
- (b) The urban and industrial areas of India are the largest contributors of carbon monoxide because of large number of automobiles and greater concentration of industries.
- (c) The doordarshan is not the national television service of India.
- (d) A port which has natural docks and a safe large anchorage area is an artificial port or man-made harbour.
- (e) Transportation on ocean and high seas is not the cheapest form of transport.

3. Match Column **A** with Column **B** : 4×1=4

A	B
(a) Human Geography	(i) The most distinguishing feature of Indian house types.
(b) Natural growth	(ii) The seasonal change of pastures by nomadic herders along with them.
(c) Transhumance	(iii) The increase in population over a time period due to higher birth rates over death rates.
(d) Courtyard	(iv) The study of human activities and interrelationship with the physical features of the land.

4. Explain briefly the traditional approaches in the study of Human geography. 2
5. Mention the *two* advantages of road transport. 2
6. Mention *two* reasons why the state of West Bengal has the highest density of population in India. 2
7. Classify the working population of India into *two* categories. 2
8. Explain briefly how the relief features of the earth distribute the population of the world. 2
9. Migration is happening around the world. Explain briefly the main cause of migration. 2
10. Describe briefly the *three* cropping seasons in India. 3
11. Determine *any three* conditions for the successful cultivation of Rice. 3
12. Air transport is the fastest means of transport. Mention the *three* physical factors affecting the development of air transport. 3

13. Distinguish between rural and urban settlements in *three* points. 3
14. You are going to establish a medium size industry. What are the *three* geographical factors that must be considered before actually establishing that industry? State how they will affect your success. 3
15. Urban waste is an environmental problem. Suggest *three* points of safe disposal of urban waste in your town or city. 3
16. Describe briefly *any four* bases of international trade. 4
17. Explain briefly the *four* popular patterns of rural settlements. 4
18. What techniques and methods are necessary to harvest rain water? 4
19. Explain briefly the reasons why railway networks are not equally distributed in India. 4
20. Write a detailed description of the commercial animal grazing under the following sub heads: 5
- (a) How it is done
 - (b) Where it is done
 - (c) Which type of animals and management
 - (d) Reasons of doing
 - (e) Benefits and disadvantages
21. On the outline map of the world provided to you, locate and label the following: 1+1=2
- (a) The temperate grassland of Argentina.
 - (b) The transcontinental railway that runs across the continent of Europe and Asia.
22. On the outline map of India provided to you, locate and label the following: 1+1+1=3
- (a) The state with the highest concentration of Scheduled Tribes (1991).
 - (b) The most urbanized state in India (2001).
 - (c) The highest sex ratio among the states of India (2001).
-

**ECONOMICS
SAMPLE QUESTION PAPER
FULL MARKS – 80
TIME – 3 Hours**

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks allotted to each question are indicated against it.
- (iii) Please write down the serial number of the question before attempting it.

SECTION –A**MACRO ECONOMICS (40 marks)**

1. State whether the following statements are *True* or *False*: 4×1=4
 - (a) There is no aggregation in micro economics.
 - (b) Transfer payments are the incomes received by the households for rendering their services to the producers.
 - (c) MPC is generally less than unity and greater than zero.
 - (d) Margin Requirement is raised by the Central Bank with a view to stimulate money supply.

2. Fill in the blanks with the correct options from the answers given: 4×1=4
 - (a) The _____ School of Thought advocated for a free economy. (Classical/Keynesian)
 - (b) Gross Income is estimated _____ of depreciation. (inclusive/exclusive)
 - (c) _____ refers to 'actual saving' in the economy during the period of one year.
(Ex-ante Saving/Ex-post saving)
 - (d) _____ refers to money by order/authority of the government. (Fiduciary Money/Fiat Money)

3. What is meant by normal residents of a country? 2
4. What is the relation between gross domestic product at market price and net domestic product at market price? 2
5. What is meant by investment multiplier? Give the formula of multiplier. 2
6. How do changes in taxes affect the availability of credit? Explain. 2
7. Explain why saving is treated as a leakage in a circular flow model. 4
8. (a) Explain *any four* primary and secondary functions of money. 4

OR

- (b) How are the commercial banks different from the central bank of a country? 4
9. Explain the various objectives of government budget. 4

10. Given the following data and using income method calculate: 6
- (a) Net Domestic Income (b) Gross Domestic Income
- (c) Net National Income (d) Net National Product at Market Price

Items	(₹ in crore)
i. Indirect taxes	8,000
ii. Subsidies	1,650
iii. Depreciation	1,500
iv. Mixed income of self-employed	18,000
v. Operating surplus	7,000
vi. Net factor income from abroad	(-)400
vii. Compensation of employees	15,000

11. (a) Explain 'saving function' with the help of a diagram. 6
- OR**
- (b) Explain the theory of determination of equilibrium level of output and income with the help of aggregate demand and aggregate supply curve. 6

SECTION -B

INDIAN ECONOMIC DEVELOPMENT (40 marks)

12. State whether the following statements are True or False: 4×1=4
- (a) Economic development is concerned both with income and structural changes.
- (b) Capitalism is the framework of planning in India.
- (c) Global exposure to the economy has been far more wider in China than in India.
- (d) If liberty indicators are accounted, India's HDI rank will improve compared with China.
13. Fill in the blanks with the correct answer from the options given: 4×1=4
- (a) Organic farming focuses on maintaining _____. (plant health/soil health)
- (b) The economy of India is now relying more on _____ sector. (tertiary/secondary)
- (c) _____ per capita income is calculated by assuming that price remains constant. (Monetary/Real)
- (d) The objective of economic planning is to achieve _____ income. (equal/equitable)
14. Explain 'exploitative agrarian relations'. 2
15. How is rising population a problem in the process of human capital formation? 2

16. What is meant by import substitution? 2
17. What is the difference between relative poverty and absolute poverty? 2
18. (a) What are the main land reforms undertaken in India? 4

OR

- (b) Briefly explain the bad impact of Inward Trade Strategy on the domestic industry. 4
19. State the four main achievements of economic planning in India. 4
20. Analyse the social consequences of unemployment. 4
21. (a) What are the possible strategies for achieving sustainable development? 6

OR

- (b) What steps have been initiated by the government to improve agricultural market system in India? 6
22. Highlight the negative impact of LPG policies. 6
-

MATHEMATICS
SAMPLE QUESTION PAPER

Full Marks – 80

Time – 3 hours

General Instructions :

- (i) All questions are compulsory.
(ii) Marks for each question are indicated against it.
(iii) Use of calculator is not permitted; however, you may ask for logarithmic tables if required.
(iv) Please write down the serial number of the questions before attempting it.

1. Choose the correct answer from the following: 16×1=16

- (a) Let S be the set of all real numbers and let R be a relation in S, defined by $R = \{(a,b): a \leq b\}$. Then R is

- (i) Reflexive and symmetric but not transitive
(ii) Reflexive and transitive but not symmetric
(iii) Symmetric and transitive but not reflexive
(iv) Equivalence relation

- (b) Let $f: R \rightarrow R: f(x) = x^5$ is

- (i) one-one and onto (ii) one-one and into
(iii) many-one and onto (iv) many-one and into

- (c) If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then $Adj A =$

- (i) $\begin{bmatrix} d & -c \\ -b & a \end{bmatrix}$ (ii) $\begin{bmatrix} -d & b \\ c & -a \end{bmatrix}$
(iii) $\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$ (iv) $\begin{bmatrix} -d & -b \\ c & a \end{bmatrix}$

- (d) If A is singular, then $A(Adj A)$ is

- (i) a unit matrix (ii) a null matrix
(iii) a symmetric matrix (iv) none of these

- (e) If $y = \sqrt{e^{\sqrt{x}}}$, then $\frac{dy}{dx}$ is

- (i) $\frac{e^{\sqrt{x}}}{\sqrt{x}}$ (ii) $\frac{e^{\frac{1}{2}\sqrt{x}}}{4\sqrt{x}}$ (iii) $\frac{e^{\frac{1}{2}\sqrt{x}}}{2\sqrt{x}}$ (iv) $\frac{e^{\sqrt{x}}}{\sqrt{x}}$
 $\frac{2}{2}$

- (f) When x is positive, the minimum value of x^x is
- (i) e^e (ii) $e^{\frac{1}{e}}$ (iii) $e^{-\frac{1}{e}}$ (iv) e
- (g) The solution of the differential equation $xdy + ydx = 0$ is
- (i) $x + y = C$ (ii) $xy = C$ (iii) $\log(x + y) = C$ (iv) none of these
- (h) $\int_{-\pi}^{\pi} (\sin^{57} x + x^{57}) dx = ?$
- (i) 2π (ii) 0 (iii) $\frac{\pi}{2}$ (iv) 57π
- (i) $\int e^x \left\{ \frac{1}{x} - \frac{1}{x^2} \right\} dx = ?$
- (i) $e^x \left\{ \log x + \frac{1}{x} \right\} + C$ (ii) $xe^x - e^x + C$
- (iii) $e^x \cdot \frac{1}{x} + C$ (iv) none of these
- (j) $\int \frac{\sin\sqrt{x}}{\sqrt{x}} dx = ?$
- (i) $2\cos\sqrt{x} + C$ (ii) $-2\cos\sqrt{x} + C$
- (iii) $2\sin\sqrt{x} + C$ (iv) $-2\sin\sqrt{x} + C$
- (k) If $|\vec{a} + \vec{b}| = |\vec{a} - \vec{b}|$,
- (i) $|\vec{a}| = |\vec{b}|$ (ii) $\vec{a} \parallel \vec{b}$
- (iii) $\vec{a} \perp \vec{b}$ (iv) none of these
- (l) If $|\vec{a}| = 2$, $|\vec{b}| = 7$, $\vec{a} \times \vec{b} = 3\hat{i} + 2\hat{j} + 6\hat{k}$, then the angle between \vec{a} and \vec{b} is
- (i) $\frac{\pi}{6}$ (ii) $\frac{\pi}{3}$ (iii) $\frac{2\pi}{3}$ (iv) $\frac{3\pi}{4}$
- (m) The direction cosines of the normal to the plane $5y + 4z = 0$ are
- (i) $0, -4/5, 0$ (ii) $0, 1, 0$ (iii) $0, -1, 0$ (iv) none of these
- (n) The intercepts made by the plane $\vec{r} \cdot (2\hat{i} - 3\hat{j} + 4\hat{k}) = 12$ are
- (i) $2, -3, 4$ (ii) $-2, 3, 4$ (iii) $6, -4, 3$ (iv) $-6, 4, -3$
- (o) If A and B are independent events, then $P(\bar{A}/\bar{B}) = ?$
- (i) $1 - P(A)$ (ii) $1 - P(B)$ (iii) $1 - P(A/\bar{B})$ (iv) $1 - P(A/B)$
- (p) Three cards are drawn successfully without replacement from a pack of 52 well - shuffled cards. The probability that the first two cards are queens and the third card drawn is a king is
- (i) $2/5525$ (ii) $1/5525$ (iii) $125/140608$ (iv) $125/156$

2. Evaluate $\cos \left\{ \cos^{-1} \left(\frac{-\sqrt{3}}{2} \right) + \frac{\pi}{6} \right\}$. 2
3. If $y = \sin^{-1} \left\{ \frac{\sqrt{1+x} - \sqrt{1-x}}{2} \right\}$, find $\frac{dy}{dx}$. 2
4. Evaluate $\int \frac{2+3x}{3-2x} dx$. 2
5. A and B appear for an interview for two posts. The probability of A's selection is $1/3$ and that of B's selection is $2/5$. Find the probability that only one of them will be selected. 2
6. Find the range and domain of the real function defined by $f(x) = \frac{x^2}{1+x^2}$. Show that f is many-one. 4
7. If $A = \begin{bmatrix} 2 & -3 \\ 4 & 6 \end{bmatrix}$, verify that $(\text{adj}A)^{-1} = (\text{adj}A^{-1})$. 4
8. The sum of three numbers is 6. Twice the third number when added to the first number gives 7. On adding the sum of the second and the third numbers to thrice the first number, we get 12. Find the numbers using matrix method. 4
9. (a) If $x^m y^n = (x+y)^{m+n}$, prove that $\frac{dy}{dx} = \frac{y}{x}$. 4

OR

- (b) If $x = (2\cos\theta - \cos 2\theta)$ and $y = (2\sin\theta - \sin 2\theta)$, find $\left(\frac{d^2y}{dx^2} \right)_{\theta = \frac{\pi}{2}}$. 4
10. Evaluate: (a) $\int (\sin^{-1} x)^2 dx$. OR (b) $\int \frac{x^2}{x^4+x^2+1} dx$ 4
11. Find the particular solution of the differential equation $\sqrt{1-x^2} dy = (\sin^{-1} x - y) dx$, it being given that when $x = 0$, then $y = 0$. 4
12. (a) Find the image of the point $(1, 6, 3)$ in the line $\frac{x}{1} = \frac{y-1}{2} = \frac{z-2}{3}$. 4

OR

- (b) Find the length and equations of the shortest distance between the lines

$$\frac{x+1}{7} = \frac{y+1}{-6} = \frac{z+1}{1} \text{ and } \frac{x-3}{1} = \frac{y-5}{-2} = \frac{z-7}{1}. \quad 4$$

13. A man is known to speak the truth 3 out of 4 times. He throws a die and reports that it is a six. Find the probability that it is not a six. 4
14. (a) Show that the semi-vertical angle of a right circular cone of given surface area and maximum volume is $\sin^{-1}(1/3)$. 6
- (b) Show that the curves $x = y^2$ and $xy = k$ cut at right angles if $8k^2 = 1$. 6

OR

15. Find the area of the region $\{(x, y): x^2 \leq y \leq |x|\}$. 6

OR

Find the area of the region $\{(x, y): 0 \leq (x^2 + 1), 0 \leq y \leq (x + 1), 0 \leq x \leq 2\}$. 6

16. Show that the lines $\frac{x-a+d}{\alpha-\delta} = \frac{y-a}{\alpha} = \frac{z-a-d}{\alpha+\delta}$, and $\frac{x-b+c}{\beta-\gamma} = \frac{y-b}{\beta} = \frac{z-b-c}{\beta+\gamma}$ are coplanar and find the equation of the plane containing them. Also find the length of perpendicular drawn from the origin to this plane. 6
17. A company makes two types of belts, A and B; profits on these belts being Rs. 4 and Rs. 3 respectively. Each belt of type A requires twice as much time as a belt of type B, and if all belts were of type B, the company could make 1000 belts per day. The supply of leather is sufficient for only 800 belts per day (A and B combined). At the most 400 buckles for belts of type A and 700 for those of type B are available per day. How many belts of each type should the company make per day so as to maximize the profit? 6

PHYSICS
(Theory)
SAMPLE QUESTION PAPER
Full Marks – 70
Time – 3 Hours

General Instructions :

- (i) All questions are compulsory.
(ii) Marks for each question are indicated against it.
(iii) Use log table, if necessary.
(iv) Use of calculator is not allowed.

1. The permittivity of vacuum is 1
(a) 1 (b) zero (c) more than 1 (d) less than one but not zero
2. An uncharged insulated conductor A is brought near a charged insulated conductor B. Which one is the correct statement for conductor B? 1
(a) Charge remains same but potential decreases. (b) Both decrease.
(c) Charge decreases but potential remains same. (d) Both increase.
3. Kirchoff's first and second laws of electrical circuits are based on the conservation of 1
(a) energy and charge (b) charge and energy
(c) mass and charge (d) mass and energy
4. The magnetic field at a point due to a current carrying conductor is directly proportional to 1
(a) resistance of the conductor (b) thickness of the conductor
(c) current flowing through the conductor (d) none of these
5. In forward bias, the width of depletion layer in a p-n junction 1
(a) decreases (b) remains unchanged
(c) increases (d) first decreases and then increases
6. A long solenoid carrying a current produces a magnetic field B along its axis. If the current is doubled and the number of turns per unit length is halved, then new value of the magnetic field is 1
(a) B (b) 2B (c) 4B (d) B/2
7. In Young's double slit experiment, when one of the two slits is covered, 1
(a) the bright fringes become fainter
(b) the fringe width decreases
(c) there is a bright slit but no interference pattern produced
(d) there is uniform illumination all over the screen
8. For ionizing an excited hydrogen atom, the energy 'E' required in eV will be 1
(a) $E < 13.6\text{eV}$ (b) $E = 13.6\text{eV}$ (c) $E > 13.6\text{eV}$ (d) none of these.
9. A nucleus of ${}^9_4\text{Be}$ absorbs an alpha particle and emits a neutron. The resulting nucleus will be 1
(a) ${}^{12}_6\text{C}$ (b) ${}^8_4\text{Be}$ (c) ${}^{12}_5\text{C}$ (d) ${}^{13}_6\text{C}$

10. A solid having uppermost energy band partially filled with electrons is called 1
 (a) conductor (b) semiconductor (c) insulator (d) none of these
11. Electron volt is a unit of 1
 (a) charge (b) momentum (c) potential difference (d) energy
12. The de-Broglie wavelength of an electron of energy 400eV is 1
 (a) 20 Å (b) 60 Å (c) 0.6 Å (d) 0.2 Å
13. The electromagnetic theory of light was developed by 1
 (a) Max Planck (b) Maxwell (c) Newton (d) Huygens
14. Which of the following has minimum wavelength? 1
 (a) Heat rays (b) Ultraviolet rays (c) Gamma rays (d) X-rays.
15. A lamp of 100W works at 220V. What is its resistance and current capacity? 2
16. (a) Differentiate between geographic meridian and magnetic meridian. 2
OR
 (b) Define magnetic dipole and magnetic dipole moment. 2
17. Write the general equation for instantaneous *emf* of 50Hz generator whose peak voltage is 200V. 2
18. Write *two* properties of microwaves. 2
19. (a) Calculate the power of a convex lens of focal length 20cm. 2
OR
 (b) Calculate the refractive index of the material of equilateral prism for which the angle of minimum deviation is 60° . 2
20. Calculate the speed of light in a medium whose critical angle is 30° . 2
21. Explain, with the help of a circuit diagram, how a junction diode acts as a half wave rectifier. 2
22. (a) What is Lorentz force? An electron is moving northwards with a velocity 10^7 m/s in a magnetic field of 3T directed eastwards. Calculate the instantaneous force on the electron. 1+2=3
OR
 (b) A horizontal overhead power line carries a current of 90A in the east to west direction. What is the magnitude and direction of magnetic field due to the current at a point 1.5m below the line? 3
23. (a) The magnetic flux through a coil perpendicular to its plane is varying according to the relation $\Phi=(4t^3 +5t^2+8t+7)$ weber. Calculate the induced current through the coil at $t=2$ s, if the resistance of the coil is 3.1 ohm. 3
OR
 (b) An e.m.f. 0.5V is developed in the secondary coil, when current in the primary coil changes from 5A to 2 A in 300 millisecond. Calculate the mutual inductance of the two coils. 3

24. Derive an expression for the energy stored in a capacitor. 3
25. Distinguish between electromotive force and terminal potential difference of a cell. What are their SI units? 2+1=3
26. A cell gives a balance with 85cm of a potentiometer wire. When the terminals of the cell are connected to a resistance of 7.5ohm, the balance is obtained at 75cm. Find the internal resistance of the cell. 3
27. Prove laws of reflection on the basis of Huygens' principle. 3
28. Explain what will happen to the focal length of a convex lens of refractive index 1.2, if it is immersed in a liquid of refractive index 1.3. 3
29. With the help of a diagram, explain the effect of anode potential on photoelectric current and hence define stopping potential. 2+1 = 3
30. Show that the velocity of an electron in Bohr's orbit is inversely proportional to the principal quantum number. 3
31. (a) Define electric field. Derive an expression for electric field on equatorial line of an electric dipole. 1+4=5
- OR**
- (b) What is Gaussian surface? Derive the expression for electric field due to an infinitely long line charge having uniform charge density. 1+4=5
32. (a) What is phasor diagram? With the help of a suitable phasor diagram, derive an expression for impedance in an a.c. series LCR- circuit. 1+1+ 3 =5
- OR**
- (b) Explain the principle, construction and working of an AC generator with a neat labelled diagram. 5
33. (a) Explain the construction and working of an astronomical telescope. Derive the expression for its magnifying power, when final image is formed at the least distance of distinct vision. 1+1+3=5
- OR**
- (b) Derive an expression for fringe width in Young's double slit experiment with a neat diagram. 5

Physical constants :

$\frac{1}{4\pi\epsilon_0}$	=	$9 \times 10^9 \text{ Nm}^2\text{C}^{-2}$
ϵ_0	=	$8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1}\text{m}^{-2}$
c	=	$3 \times 10^8 \text{ ms}^{-1}$
e	=	$1.6 \times 10^{-19} \text{ C}$
m_e	=	$9.1 \times 10^{-31} \text{ Kg}$
m_p	=	$1.67 \times 10^{-27} \text{ Kg}$
h	=	$6.62 \times 10^{-34} \text{ Js}$
G	=	$6.67 \times 10^{-11} \text{ Nm}^2 \text{ Kg}^{-2}$
g	=	9.8 ms^{-2}
1\AA	=	10^{-10} m
1 amu	=	931 MeV
μ_0	=	$4\pi \times 10^{-7} \text{ TA}^{-1}\text{m}$
eV	=	$1.6 \times 10^{-19} \text{ J}$

CHEMISTRY
(Theory)
SAMPLE QUESTION PAPER
Full Marks – 70
Time – 3 Hours

General Instructions:

- (i) All questions are compulsory.
(ii) Marks for each question are indicated against it.
(iii) Use log tables if necessary.
(iv) Use of calculator is not allowed.

1. An organic compound which can be distinguished by using sodium bicarbonate is 1
 - a) Alcohols
 - b) Aldehydes
 - c) Phenols
 - d) Carboxylic Acids

2. Which of the following organic compound will give a positive carbylamine test? 1
 - a) N-methylaniline
 - b) N-methyl-o-methylaniline
 - c) N,N-dimethylaniline
 - d) 2,4-Dimethylaniline

3. The IUPAC name of $(CH_3CH_2)_3N$ is 1
 - a) Hexan-1-amine
 - b) Triethylethanamine
 - c) N-ethylethanamine
 - d) N,N-diethylethanamine

4. Which of the following is the correct IUPAC name of $CH_3 - \overset{\overset{CHO}{|}}{CH} - COOH$? 1
 - a) 2-Methyl-3-oxopropanoic acid
 - b) 2-Carboxypropanal
 - c) 3-Methyl-2-oxopropanoic acid
 - d) 3-Carboxypropanal

5. The boiling point of a solvent containing non-volatile solute 1
 - a) is depressed
 - b) is elevated
 - c) does not change
 - d) none of the above

6. Which of the following concentration term does not change with temperature? 1
 - a) Molarity
 - b) Molality
 - c) Normality
 - d) Formality

7. If the rate of reaction between A and B is expressed as $k[A][B]^2$, the reaction is 1
 - a) first order in A
 - b) second order in B
 - c) overall having third order
 - d) all are correct

8. What is the molecularity of the reaction $Cl \rightarrow \frac{1}{2}Cl_2(g)$? 1
 - a) $\frac{1}{2}$
 - b) 1
 - c) 2
 - d) 0

9. Given $E^\circ (Ni^{2+}/Ni)$ and $E^\circ (Cu^{2+}/Cu)$ are $-0.2205V$ and $0.34V$ respectively. The potential for the cell $Ni/Ni^{2+}(0.01M) || Cu^{2+}(0.1M)/Cu$ is 1
 - a) 0.59
 - b) -0.59
 - c) 0.95
 - d) -0.95

10. The number of phases in a colloidal system is 1
 - a) 1
 - b) 2
 - c) 3
 - d) 4

11. The transition temperature between α -sulphur and β -sulphur is 1
- | | |
|---------|---------|
| a) 269K | b) 296K |
| c) 369K | d) 396K |
12. Which of the following ions does not give coloured solution? 1
- | | |
|--------------|--------------|
| a) Fe^{2+} | b) Zn^{2+} |
| c) Cr^{2+} | d) Mn^{2+} |
13. Which of the following ions has paramagnetic character ? 1
- | | |
|--------------|--------------|
| a) Cu^+ | b) Sc^{3+} |
| c) Ni^{2+} | d) Ti^{4+} |
14. Which of the following gives positive Fehling's solution test? 1
- | | |
|------------|------------|
| a) Sucrose | b) Glucose |
| c) Fats | d) Protein |
15. Ethyl amine is a stronger base than ammonia. Explain. 2
16. (a) Write notes on Esterification reaction with suitable chemical equation. 2
- OR**
- (b) Write notes on Hunsdiecker reaction with suitable chemical equation. 2
17. Differentiate between Schottky and Frenkel defect. 2
18. H_3PO_2 and H_3PO_3 are good reducing agent but H_3PO_4 is not. Why? 2
19. Write mechanism for the reaction $(CH_3)_3CCl + KOH(aq) \rightarrow (CH_3)_3COH + KCl(aq)$. 2
20. Explain why haloarenes undergo electrophilic substitution reaction at ortho and para positions? 2
21. Why are phenols more acidic than alcohols ? 2
22. Write notes on Friedel Craft Alkylation reaction with suitable chemical reaction. 2
23. Define Rosenmund reduction with suitable chemical reaction. 2
24. Write the correct chemical reaction for the conversion of Aniline to benzoic acid. 2
25. Write the reaction for the conversion of Propan-1-ol to propan-2-ol. 2
26. Define the following: 1+1+1= 3
- | |
|---------------------------------|
| (a) Electrophoresis |
| (b) Tyndall effect |
| (c) Coagulation or flocculation |
27. Why are Mn^{2+} compounds more stable than Fe^{2+} compounds towards oxidation to their +3 state? 3

28. Explain the following terms: 1+1+1= 3
 (a) Coordination number
 (b) Ambident ligands
 (c) Homoleptic complexes
29. With the help of valence bond theory, predict the hybridization state, magnetic character and geometry of the complex $[Co(NH_3)_6]^{3+}$. 3
30. What are reducing sugars? What are the characteristic groups present in these sugars? Why is Sucrose a non-reducing sugar? 3
31. The compound CuCl has fcc structure like ZnS. Its density is 3.4 g cm^{-3} . What is the edge length of the Unit cell? (mass of Cu=63.5 and mass of Cl=35.5) 3
32. The boiling point of benzene is 353.23 K. When 1.80g of non-volatile solute was dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of the solute. (K_b for benzene is 2.53K Kg/mol) 3
33. (a) The thermal decomposition of a compound is of first order. If 50% of the compound is decomposed in 120 minutes, how long will it take for 90% of the compound to decompose? 3

OR

- (b) The three-fourth of a first order reaction is completed in 32 minutes. What is the half life period of the reaction? 3
34. (a) Can we store copper sulphate in a vessel made of iron? Justify your answer. 2
- (b) Calculate the resistance of 0.01N solution of an electrolyte whose equivalent conductivity is $420 \text{ ohm}^{-1} \text{ cm}^2 \text{ equi}^{-1}$ (The cell constant of the cell is 0.88 cm^{-1}) 3

OR

- (a) Why is the alternating current used for measuring the resistance of an electrolytic solution? 2
- (b) Calculate the e.m.f of the cell in which the following reaction take place:
 $Ni(s) + 2Ag^+(0.002M) \rightarrow Ni^{2+}(0.160M) + 2Ag(s)$. Given that standard electrode potential of the cell is 1.05V. 3
35. (a) (i) Why does Ammonia form hydrogen bonds while Phosphine does not? 2
 (ii) Bond enthalpy of Fluorine is lower than that of Chlorine. Why? 3

OR

- (b) (i) Give reason why oxygen is a gas but sulphur is a solid at room temperature. 2
 (ii) Why are noble gases very inert? Draw the structure of the four types of interhalogen compounds in which the central atom is Iodine. 3

BIOLOGY
(Theory)
SAMPLE QUESTION PAPER
Full Marks – 70
Time – 3 Hours

General instructions:

- (i) All questions are compulsory.
(ii) Please write down the serial number of the question before attempting it.
(iii) Marks for each question are indicated against it.

SECTION – A

1. Choose the correct answer: 5x1=5
- a) A flower that has only stamens is called
- | | |
|-----------------------|----------------------|
| (i) Unisexual flower | (ii) Bisexual flower |
| (iii) Complete flower | (iv) Neuter flower |
- b) A character that appears in homozygous condition only is called
- | | |
|------------------|-----------------|
| (i) heterozygous | (ii) phenotype |
| (iii) recessive | (iv) homozygous |
- c) In protoplast fusion, the enzymes required are
- | | |
|-----------------------------|--------------------------|
| (i) cellulase, pectinase | (ii) pectinase, ligase |
| (iii) ligase, hemicellulase | (iv) cellulase, helicase |
- d) A gene that is transferred into an organism by genetic engineering is called
- | | |
|---------------------------|--------------------------------|
| (i) transgene | (ii) genetically modified gene |
| (iii) single cell protein | (iv) protoplast |
- e) Community is defined as an aggregation of
- | | |
|-----------------------------------|--------------------------------------|
| (i) individuals of the same kind | (ii) individuals of different kind |
| (iii) individuals of a population | (iv) population of different species |
2. Fill in the blanks : 5x1=5
- a) Phosphorous goes back to soil by of dead and decayed detritus.
b) is supposed to be the basic unit of taxonomy.
c) Growth of Graafian follicle is stimulated mainly by of the pituitary.
d) The dramatic increase in population size within a few decades is called
e) Substances like dust, pollens, and certain food that can cause allergies are called
3. State whether the following statements are True or False: 4x1=4
- a) Each chromosome consists of a number of genes.
b) A method of fertility control in males by tying of vas – deferens is called tubectomy.
c) Conservation strategies that are on-site are called Ex-situ conservation.
d) Animals that live or feed on other organisms are called heterotrophs.

SECTION – B

4. (a) Write *two* diseases each caused by viruses and bacteria. 2
- OR**
- (b) Write *two* symptoms of Typhoid. 2

5. Differentiate between active and passive immunity. 2
6. What is STD? Give four examples of STD. 2
7. How is test cross used to determine the genotype of an organism? 2
8. What is the role of restriction endonuclease and DNA ligase in rDNA technology? 2
9. Differentiate between Ectotherms and Endotherms. 2
10. What are biogeochemical cycles? Give *two* examples. 2

SECTION – C

11. (a) What are the effects of soil erosion? 3

OR

- (b) What is noise pollution? Write *two* effects of noise pollution. 3
12. How does biodiversity vary with altitude and latitude? 3
13. Explain palindromic nucleotide sequence with example. 3
14. What is a Bio-reactor? What are the important aspects of a Bio-reactor? 3
15. What are the different blood groups and the kinds of antigens and antibodies? 3
16. What is 'semi-conservative' DNA replication? How was it experimentally proved? 3
17. Explain the secondary treatment of sewage and write how it differs from physical treatment. 3
18. Draw a well labelled diagram of somatic hybridization and explain the steps. 3
19. Describe the process of pollen germination with a labelled diagram. 3

SECTION – D

20. (a) Explain spermatogenesis in detail with a diagram. 5

OR

- (b) Explain the different steps in fertilization with the help of a diagram. 5
21. (a) (i) What is colour blindness ? What will happen if a colour blind male marries a normal female? 3
- (ii) Differentiate between co-dominance and incomplete dominance. 2

OR

- (b) What is genetic code? Explain four characteristics of genetic code. 5
22. (a) Explain with diagram, amplification of gene of interest using PCR. 5

OR

- (b) What is the cause of ADA deficiency? Explain the steps in gene therapy to treat SCID patient with a suitable diagram. 5

BUSINESS STUDIES
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 Hours

General Instructions :

- (i) All questions are compulsory.
(ii) Marks are indicated against each question.
(iii) Please write the number of the question before attempting it..

PART – A (50 marks)**Principles and Functions of Management**

1. Choose the correct answer: 5×1=5
- (a) Which of the following is not a function of management?
(i) Planning (ii) Staffing
(iii) Cooperating (iv) Controlling
- (b) Which of the following does not characterise business environment?
(i) Uncertainty (ii) Employees
(iii) Relativity (iv) Complexity
- (c) Planning is
(i) Mental process (ii) Goal oriented
(iii) Forward looking (iv) All the above
- (d) Staffing is the responsibility of
(i) Top level management (ii) Middle level management
(iii) First line supervisors (iv) All the above
- (e) Supervisors are links between
(i) Directors and managers (ii) Workers and middle level managers
(iii) Directors and workers (iv) Workers and workers..
2. State whether the following statements are True or False: 4×1=4
- (a) Henri Fayol was a mining engineer.
(b) A good plan should be expensive.
(c) Supervisors are concerned with finding fault with workers.
(d) Standards for measuring performance should be in verifiable physical terms.
3. State two importance of business environment. 2
4. Define the term Liberalisation. 2
5. What is meant by delegation of authority? 2
6. Explain the first four steps in the planning process. 4
7. Which function of management assures that the actual activities conform to the planned activities? Explain *any three* points of its importance. 1+3=4

8. (a) Explain in brief the objectives of management. 5

OR

- (b) In what way is coordination important for an organisation? Discuss. 5

9. (a) Explain the techniques of scientific management. 5

OR

- (b) Describe the significance of principles of management. 5

10. (a) Explain the need and importance of the staffing function. 5

OR

- (b) Elaborate the first five steps in the staffing process. 5

11. (a) What is the system of management through which a manager multiplies himself?
Enumerate its importance. 1+5=6

OR

- (b) Explain *any six* points which highlight the importance of Organising. 6

12. (a) Describe the importance of Direction in the management of the business. 6

OR

- (b) Define motivation. Briefly explain Maslow's hierarchy of needs. 1+5=6

PART-B (30 marks)

Financial Management and Marketing

13. Fill in the blanks with the correct answer: 4x1=4

(a) _____ is not the source of fixed capital.

- | | |
|-----------------------|--------------------------|
| (i) Issue of shares | (ii) Issue of debentures |
| (iii) Loans from IBRD | (iv) Bank overdraft. |

(b) Mailing of literature through middlemen is _____

- | | |
|--------------------|----------------------|
| (i) advertising | (ii) sales promotion |
| (iii) salesmanship | (iv) dealer's aid |

(c) Consumer Protection Act 1986 extends to the whole of India, except _____

- | | |
|-------------------|------------------------|
| (i) Mizoram | (ii) Jammu and Kashmir |
| (iii) West Bengal | (iv) Maharashtra |

(d) _____ is the costliest form of marketing.

- | | |
|-----------------------|------------------|
| (i) Personal selling | (ii) Advertising |
| (iii) Sales promotion | (iv) Direct mail |

14. State whether the following statements are *True* or *False*: 3x1=3
- (a) Financial management is the applied field of general management.
 - (b) Working capital may be raised from shares, debentures and loans.
 - (c) Incentive provided in case of sales promotion are not real.
15. What is meant by secondary capital market? 2
16. What is Branding? 2
17. State *any four* regulatory functions of SEBI. 4
18. Under Consumer Protection Act 1986, Consumer Disputes Redressal Agencies have been established. Among these, District Forum is one of the agencies, mention its first four features. 4
19. (a) Explain, in brief, *any five* factors which affect the requirement of fixed capital of an Enterprise. 5
- OR**
- (b) Explain *any five* factors influencing the capital structure of a company. 5
20. (a) What is meant by price mix? Briefly explain the factors affecting price. 1+5=6
- OR**
- (b) Elaborate the six qualities that a successful salesman should possess. 6
-

ACCOUNTANCY
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 hours

General Instructions :

- (i) This question paper is divided into two parts – A and B.
- (ii) Part A carries 60 marks and Part B carries 20 marks.
- (iii) Each question carries marks indicated against it.
- (iv) Please write down the serial number of the question before attempting it.

PART – A (60 marks)

ACCOUNTING FOR PARTNERSHIP FIRMS AND COMPANIES

1. Choose the correct answer from the given alternatives:

13x1=13

- (a) The sacrifice of Old Partner is _____
 - (i) new share
 - (ii) new share – old share
 - (iii) old – new share
 - (iv) old share
- (b) Partners are not entitled to receive _____ in the absence of partnership agreement.
 - (i) salaries
 - (ii) interest on capital
 - (iii) fees and commission
 - (iv) all of these
- (c) Partners' current accounts are prepared when capital account is _____
 - (i) fixed
 - (ii) fluctuating
 - (iii) both (i) and (ii)
 - (iv) none of these
- (d) The balance of partners capital account will reduce with _____
 - (i) salaries
 - (ii) interest on drawings
 - (iii) interest on capital
 - (iv) interest on loan
- (e) If the new partner brings the amount of goodwill in cash, goodwill is transferred to old partners' capital accounts in _____
 - (i) old ratio
 - (ii) new ratio
 - (iii) sacrificing ratio
 - (iv) gaining ratio
- (f) At the time of admission, profit or loss on revaluation account is transferred to _____ partners' capital account.
 - (i) old
 - (ii) new
 - (iii) all
 - (iv) continuing

- (g) Unless given otherwise, the ratio of sacrifice is the same as _____
 (i) new ratio (ii) old ratio (iii) sacrificing ratio (iv) gaining ratio
- (h) On the death of a partner, the deceased partner's capital account will be credited with _____
 (i) his/her share of goodwill
 (ii) goodwill of the firm
 (iii) share of goodwill of remaining partners
 (iv) none of these
- (i) In the absence of any information regarding the acquisition of share in profit of the retiring/deceased partner by the remaining partners, it is assumed that they will acquire his/her share in _____
 (i) old ratio (ii) new ratio (iii) equal ratio (iv) none of these
- (j) A company is created by _____
 (i) General law
 (ii) agreement between investors or potential shareholders
 (iii) Status of its members
 (iv) Special act of parliament
- (k) Securities Premium Account can be used for _____
 (i) paying dividend on share
 (ii) writing off the expenses on any issue of shares or debentures
 (iii) paying tax liabilities
 (iv) meeting the loss on the sale of an asset
- (l) Capital reserve is formed if shares are _____
 (i) issued
 (ii) forfeited
 (iii) forfeited and reissued
 (iv) in all the above cases
- (m) Share allotment account is _____
 (i) Personal account
 (ii) Impersonal account
 (iii) Real account
 (iv) Nominal account
2. R and S were partners in a firm sharing in the ratio of 2:1. Their capitals were Rs 3,00,000 and Rs 2,00,000 respectively. They agreed to allow interest on capital @12% p.a. The profit of the firm before interest on capital amounts to Rs 48,000. Show the allocation of interest on capital if there is no agreement except for interest on capital. 3

3. Calculate interest on drawings @ 12% in the following cases: 2+2=4
- (i) If 1000 are drawn for 1st day of every month for seven months.
(ii) 5000 are drawn (date not specified).
4. A firm earned net profit during the last five years as follows.
I-21,000 II- 19,500 III- 24,000 IV- 22,500 V- 18,000
The capital investment of the firm is Rs 1,20,000. A fair return on capital in the market is 12%. Find out the value of goodwill, if it is based on three years' purchase of average super profit of the last five years. 4
5. A and B are partners sharing in the ratio of 3:2. C is admitted as a new partner. C brings Rs 20,000 as capital and Rs 10,000 as goodwill. Pass necessary journal entries regarding goodwill in the following cases:
(i) C is admitted for 1/5th share.
(ii) C, the new partner is given 1/5th share equally from A and B. 4
6. A, B and C are partners sharing profit and losses in the ratio of 4 : 3 : 2 respectively. B retires, selling his share of profit to A and C for Rs 36,000, Rs 9,000 being paid by A and Rs 27,000 being paid by C. The profit of the firm after B's retirement is Rs 1,62,000. Distribute the above profit between A and C, showing how you arrive at the same. 4
7. A, B and C were partners sharing profit and losses in the ratio of 2:2:1. Individual policies of Rs. 50,000, Rs. 30,000 and Rs. 20,000 on the lives of A, B and C respectively were taken and premium paid was charged to P/L account (prepared on 31st December each year).
- C died on 31st March, 2005. On this date surrender values are 50% of the amount of policies. Under the partnership deed the executors of deceased partner were entitled to:
- (i) His capital as per balance sheet
(ii) Interest on capital @ 10% p.a to the date of death.
(iii) His share of profit to the date of death, calculated on the basis of last year profit.
(iv) His share of insurance money.
- Interest on drawings is to be charged at an average rate of 6% irrespective of the period.
- C's capital on 31st December 2004 stood at Rs. 80,000 and his drawings from that date to the date of his death were Rs.14,000. Last year profits were Rs. 40,000. Prepare C's executors accounts. 6
8. A company issues 1,00,000 shares of Rs. 10 each, payable Rs.5 on application, Rs.3 on allotment and Rs.2 on call. The shares were oversubscribed to the extent of 20,000 shares. One applicant, who applied for 5,000 shares, was served with letter of regret and another shareholder, who applied for 25,000 shares, was allotted only 10,000 shares. His excess money on application, were to be utilized on allotment and calls. Allotment and calls were made and duly received. Pass necessary journal entries. 6

9. (a) A and B were partners in a firm sharing profits and losses in the proportion of 5:3. Their Balance sheet on 31st Dec. 2000 was as follows.

Liabilities	Amount	Assets	Amount
Sundry creditors	4,000	cash in hand	300
Bills payable	2,000	Bank balance	500
Capital Accounts:		Debtors	7,200
A	12,000	Stock	8,000
B	10,000	Machinery	12,000
	28,000		28,000

On the above date the partners decide to admit C as a partner on the following terms:

- (i) The new profit sharing ratio A, B and C will be 7:5:4 respectively.
- (ii) C shall bring Rs.8,000 as his capital and Rs.4,000 for his share of goodwill.
- (iii) A and B will draw half of the goodwill in cash.
- (iv) Machinery is to be valued at Rs.15,000, stock at Rs.10,000 and a provision for bad debts of Rs.1,000 is to be created.
- (v) There is a liability of Rs.2,000, being the outstanding salary payable to employees of the firm. This liability is not included in sundry creditors. Partners decided to show this liability in the books of accounts of the new firm.

Prepare Revaluation account, Partners' capital accounts and Balance sheet of the reconstituted firm.

8

OR

- (b) M, N and O were in partnership sharing profits and losses in the proportion of 3 : 2 : 1. On 1st January, 2001, N retires from the firm. On that date, their balance sheet was as follows:

Liabilities	Amount	Assets	Amount
Trade creditors	3,000	Cash at bank	7,500
Bills payable	4,500	Cash in hand	1,500
Expenses owing	4,500	Debtors	15,000
Reserve fund	13,500	Stock	12,000
Capital accounts:		Factory premises	22,500
M	15,000	Machinery	8,000
N	15,000	Loose tools	4,000
O	<u>15,000</u>		
	45,000		
	70,500		70,500

The terms were:

- (i) Goodwill of the firm was valued at Rs.13,500.
- (ii) Expenses owing to be brought down to Rs.3,750.
- (iii) Unrecorded liability worth Rs.600 was paid.
- (iv) Machinery and loose tools are to be valued at 10% less than their book's values.
- (v) Factory premises are to be revalued at Rs.24,300

Show the Revaluation account, Partners' capital accounts and prepare the Balance sheet of the firm after the retirement of N. 8

10. (a) D Ltd. offered to the public 20,000 Equity Shares of Rs 10 each, payable Rs 4 on application, Rs 2 on allotment, Rs 2 on 1st call and the balance on final call. Application totaled 35,000 shares. Applications for 10,000 shares were rejected. Those totaling 15,000 shares were allotted 10,000 shares and the remaining applications were accepted in full. Excess application money was utilized towards the money due on allotment. Both the calls were made. One shareholder, holding 500 shares failed to pay the two calls and as a consequence his shares were forfeited. 200 of these shares were reissued as fully paid at Rs 6 per share. Pass necessary journal entries. 8

OR

- (b) A Ltd. Company forfeited has a nominal capital of Rs 2,50,000 in Rs 10 shares. Of these shares 4,000 shares were issued as fully paid for against Building purchased, 8,000 shares were subscribed for by the public, and during the 1st year Rs 5 per share were called up, payable Rs 2 on application, Re 1 on 1st call and Re 1 on 2nd call. The amounts received in respect of these shares were as follows:

- On 6,000 shares the full amount called.
- On 1,250 shares Rs 4 per share.
- On 500 shares Rs 3 per share.
- On 250 shares Rs 2 per share.

The directors forfeited 750 shares on which less than Rs 4 had been paid. The shares were subsequently reissued at Rs 3 per share. Pass necessary journal entries. 8

PART-B (20 marks)

FINANCIAL STATEMENT ANALYSIS

11. Choose the correct answer from the given alternatives: 3x1=3
- (a) Analysis of financial statements serves the purpose of _____
- (i) investors
 - (ii) shareholders
 - (iii) debenture holders
 - (iv) all of these
- (b) Cash from operating activities consists of _____
- (i) operational net profit
 - (ii) decrease in current assets
 - (iii) increase in current liabilities
 - (iv) all of these

(c) Cash inflow from Financing Activity is _____

- (i) redemption of Debentures
- (ii) repayment of borrowings
- (iii) purchase of Land and Building
- (iv) proceeds from issue of Shares

12. Calculate Accounting Ratios: 2+2+2=6

- (i) Current ratio is 2.2:1 and the Net Working Capital is Rs 36,000. Calculate current assets and current liabilities.
- (ii) Opening stock is Rs 19,000, Closing stock is Rs 21,000, sale Rs 2,00,000, Gross Profit Ratio on sales is 25% Calculate Stock Turnover Ratio.
- (iii) Net sales Rs 9,00,000, Total long term debts Rs 3,00,000, Shareholder funds Rs 5,00,000, Deposits in Bank Rs 1,00,000, Fixed assets at written down value Rs 2,00,000, Purchases less return outwards Rs 6,00,000. Calculate Debts Equity Ratio.

13. Calculate Operating Net Profit from the following Profit and Loss Account: 3

Particulars	Amount	Particulars	Amount
Expenses paid	1,80,000	Gross profit	9,60,000
Depreciation	42,000	Profit on sale of land	36,000
Loss on sales of machine	2,400		
Goodwill	12,000		
Net profit	7,59,600		
	9,96,000		9,96,000

14. Prepare a Comparative Income Statement. 4

Particulars	2011	2012
Revenue from operations	30,00,000	40,00,000
Cost of sales	60% of sales	55% of sales
Wages	25,000	30,000
Operating expenses	20% of G.P	25% of GP
Income tax	40%	40%

15. From the following comparative balance sheet, prepare statement of Cash Flow. 4

Liabilities	2010	2011	Assets	2010	2011
Share Capital	1,44,000	1,53,000	Building	90,000	90,000
Profit and Loss A/c	26,100	44,100	Plant	45,000	63,000
Creditors	16,200	9,000	Stock	14,400	10,800
Mortgage	-	9,000	Debtors	28,800	34,200
			Cash	8,100	17,100
	1,86,300	2,15,100		1,86,300	2,15,100

**PUBLIC ADMINISTRATION
SAMPLE QUESTION PAPER
Full Marks – 80
Time – 3 Hours**

General Instructions :

- (i) All questions are compulsory.
(ii) Marks for each question are indicated against it.
(iii) Please write down the number of the question before attempting it.

1. Choose the correct answer : 16x1=16
- (a) The first Proclamation was made for India in
(i) 1857 (ii) 1858
(iii) 1935 (iv) 1947
- (b) In India, there shall be
(i) Official religion (ii) No state religion
(iii) Recognised religion (iv) State religion
- (c) Indian ‘Parliamentary Democracy’ is borrowed from
(i) Canada (ii) France
(iii) United States of America (iv) England
- (d) Judiciary is
(i) guardian of rights (ii) guardian of constitution
(iii) source of law (iv) all of these.
- (e) The First Woman President of India was
(i) Indira Gandhi (ii) Sarojini Naidu
(iii) Pratibha Devisingh Patil (iv) Meera Kumar
- (f) The Prime Minister of India is appointed by
(i) President of India (ii) Chief Justice of India
(iii) Speaker of Lok Sabha (iv) Vice-President of India.
- (g) ‘Cabinet Secretariat’ means the Office of _____
(i) Prime Minister (ii) Secretary
(iii) Cabinet Secretary (iv) Cabinet Minister
- (h) The Governor of the State is appointed by the President of India under
(i) Article 154 (ii) Article 155
(iii) Article 164 (iv) Article 165
- (i) The Ex-Officio House Leader of the State Assembly is
(i) Governor (ii) Chief Minister
(iii) Chief Secretary (iv) Speaker
- (j) The highest Office of the State Government is
(i) State Secretariat (ii) Directorates
(iii) State Planning Board (iv) District office
- (k) The Mughal Emperor used the word ‘Sarkar’ to mean
(i) Government (ii) Executive
(iii) District (iv) State
- (l) The Father of Local Self Government in India is
(i) Lord Canning (ii) Lord Ripon
(iii) Dr. B.R Ambedkar (iv) Henry Fayol
- (m) 6th Schedule is made for the administration of Tribal areas in Mizoram, Tripura, Meghalaya and _____
(i) Nagaland (ii) Manipur
(iii) Assam (iv) Sikkim

- (n) The first Public Service Commission was set up in India on
 (i) 1st June, 1925 (ii) 1st October, 1925
 (iii) 1st June, 1926 (iv) 1st October, 1926
- (o) The word 'Ombudsman' means
 (i) justice (ii) representative
 (iii) investigation (iv) lawyer
- (p) There are _____ All India Services.
 (i) Two (ii) Three
 (iii) Four (iv) Ten
2. What is meant by 'Dyarchy' ? 2
3. Define 'Secularism' in the Indian context. 2
4. Define the term 'President's Rule'. 2
5. Mention *any two* legal immunities enjoyed by the Governor of the State. 2
6. What is the main aim of Local Self Government ? 2
7. What is Lok Adalat ? 2
8. What are the *two* types of Recruitment ? 2
9. What is meant by All India Services ? 2
10. Explain the main administrative system of India between 1858-1919. 4
11. Write down the importance of Judiciary in Indian administration. 4
12. Write down *any four* functions of Cabinet Secretary. 4
13. Write down the composition and qualifications of the members of the District Council under the 6th Schedule. 2+2=4
14. Mention *any four* functions of the State secretariat. 4
15. (a) Briefly explain the powers and functions of the President of India. 7
- OR**
- (b) Explain the powers and functions of the Prime Minister of India. 7
16. (a) "The Chief Secretary is the ring leader in policy matters of the state".
 Explain this statement in the light of his roles in the state administration. 7
- OR**
- (b) Describe the relationship between the Chief Minister and his Council of Ministers. 7
17. (a) Briefly explain the development of District Administration in India. 7
- OR**
- (b) Describe the different roles played by the Deputy Commissioner within his district. 7
18. (a) Write down the composition, powers and functions of the Union Public Service Commission. 2+5=7
- OR**
- (b) Explain the roles of Civil Services in India. 7

**BUSINESS MATHEMATICS
SAMPLE QUESTION PAPER**

Full Marks – 80

Time – 3 hours

General Instructions :

- (v) The question paper has three parts – A, B and C. All the parts are compulsory.
 (vi) Write the number of the question before attempting it.
 (vii) Marks for each question are indicated against it.

**PART-A
(COMMERCIAL ARITHMETIC – 24 MARKS)**

1. Choose the correct answer from the options given below. 3x1=3
- (a) The method of solving a problem by forming a compound proportion is called_____
- | | |
|-----------------------------------|--------------------|
| (i) The Compound Rule of three | (ii) Rule of three |
| (iii) Ratio and proportion method | (iv) None of these |
- (b) If a:b=2:3 and b:c=4:3, then a:b:c will be
- | | |
|--------------|------------|
| (i) 8:12:9 | (ii) 2:3:9 |
| (iii) 2:3:12 | (iv) 2:3:8 |
- (c) In a ratio which is equal to 3:8, if the antecedent is 51. Then, the consequent is_____
- | | |
|----------|----------|
| (i) 136 | (ii) 24 |
| (iii) 11 | (iv) 146 |
2. Two partners A and B start a business. A contributes Rs.12, 000 and B Rs.18, 000. B was to have 15 % of the profit for his salary as manager. At the end of 7 months, A withdrew one third of his capital, and two months later B withdrew one half of his. The profit for the year amounted to Rs.3130. What sum of money ought each to receive? 2
3. If 10 men, 40 women, 80 boys can do a piece of work in 60 days working 6 hours a day, in how many days will 5 men, 5 women and 10 boys do the same working 9 hours a day. (men:women:boy=1:2:4) 3
4. A contractor undertook to build a house in 21 days and engaged 15 men for that purpose. After 15 days, he put in 9 more men on the work and he had it finished one day too soon. How many days would he have taken without the additional men? 3
5. (a) Two pipes A and B can fill a cistern in 20 and 30 minutes respectively. The pipe B opened first, after how many minutes the pipe A must also be opened so that the cistern may be filled in 10 more minutes? 3

OR

- (b) Divide Rs. 600 among A, B, and C so that B may get Rs.40 less than A and C may get half of what B gets. 3

6. A, B and C have Rs 50,000, Rs 35,000 and Rs 25,000 respectively in Health care scheme. A and B receives respectively 20 and 10 per cent of the annual profit as benefit. The remainder of the profit is divided among them in proportion to their capital. If at the end of the year A receives altogether Rs 1200 more than B, what does each receive? 5
7. (a) A and B enter into a partnership with Rs 40,000 and Rs 50,000 respectively. It is agreed that A will draw salary of Rs. 300 per month for supervising the business and B is to receive a commission of 2 % on the turnover as a salesman and the profit will be shared in the proportion 2:3. In 1953, the sales amount to Rs 1,47,300 and the profit amount to Rs 32,436 before charging salary and commission. Calculate the returns that the income of A and B represent on their respective capitals. 5

OR

- (b) A, B and C start a Partnership. A contributing Rs1440 and they agree to share profit and losses prorate. A withdrew his capital after 4 months, B after 6 months and C after 8 months. At the end of the year A got as his share $\frac{1}{8}$ of the total profit, B got $\frac{1}{3}$ and C the balance. Find how much B and C contribute to the business. 5

PART B
(ALGEBRA – 40 MARKS)

8. Choose the correct answer from the options given below: 9x1=9
- (a) If ${}^nC_8 = {}^nC_6$. Then, $n =$
- | | |
|----------|---------|
| (i) 0 | (ii) 14 |
| (iii) 48 | (iv) 1 |
- (b) The LCM of 2!, 3! and 4! is
- | | |
|----------|---------|
| (i) 12! | (ii) 4! |
| (iii) 2! | (iv) 3! |
- (c) The 16th term of $\sqrt{2}, 3\sqrt{2}, 5\sqrt{2}, 7\sqrt{2}, \dots$ is
- | | |
|--------------------|-------------------|
| (i) $16\sqrt{2}$ | (ii) $32\sqrt{2}$ |
| (iii) $31\sqrt{2}$ | (iv) $30\sqrt{2}$ |
- (d) The arithmetic mean between 2 and -18 is
- | | |
|---------|----------|
| (i) 10 | (ii) -10 |
| (iii) 8 | (iv) -8 |
- (e) If $P(A) = \frac{7}{11}$, $P(B) = \frac{9}{11}$ and $P(A \cap B) = \frac{4}{11}$, then $P\left(\frac{A}{B}\right) =$
- | | |
|---------------------|--------------------|
| (i) $\frac{7}{4}$ | (ii) $\frac{9}{4}$ |
| (iii) $\frac{4}{9}$ | (iv) $\frac{4}{7}$ |
- (f) A coin is tossed and a die is thrown. Then, the probability of obtaining a 6, given that a head came up is
- | | |
|---------------------|--------------------|
| (i) $\frac{1}{2}$ | (ii) $\frac{1}{3}$ |
| (iii) $\frac{1}{4}$ | (iv) $\frac{1}{6}$ |
- (g) A die is thrown and the outcome is odd, what is the probability that it is prime.
- | | |
|---------------------|--------------------|
| (i) $\frac{2}{3}$ | (ii) $\frac{1}{3}$ |
| (iii) $\frac{3}{4}$ | (iv) $\frac{1}{6}$ |

- (h) A matrix is invertible if it is
- (i) Singular (ii) Non-Singular
(iii) Skew-symmetric (iv) Symmetric
- (i) If A is an $n \times n$ square matrix. Then $A \times I_n =$
- (i) 0 (ii) I_n
(iii) A (iv) No value
9. If ${}^n P_r = 840$, ${}^n C_r = 35$, find the value of r . 2
10. Find the value of n if ${}^{n-1} P_3 : {}^{n+1} P_3 = 5 : 12$. 2
11. In a class, 40% of students study mathematics; 25% study Economics and 15% study both. One student is selected at random. Find the probability that
- (i) he studies Mathematics if it is known that he studies Economics
(ii) he studies Economics if it is known that he studies Mathematics 2
12. If $[1 \ x \ 1] \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 3 & 2 & 5 \end{bmatrix} \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix} = 0$, find the value of x . 2
13. Find the matrix X such that $2A - B + X = 0$, 2
where $A = \begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 1 \\ 0 & 3 \end{bmatrix}$
14. Find the sum of all integers between 101 and 500 which are divisible by 9. 3
15. (a) Using property of determinant prove that 3
- $$\begin{vmatrix} 4+x & 2x & 2x \\ 2x & 4+x & 2x \\ 2x & 2x & 4+x \end{vmatrix} = (5x+4)(x-4)^2$$
- OR**
- (b) Express $A = \begin{bmatrix} 9 & 7 & 3 \\ 5 & -1 & 4 \\ 6 & 8 & 2 \end{bmatrix}$ as sum of Symmetric and Skew- Symmetric. 3
16. Divide 32 into four parts which are in AP such that the product of extremes is to the product of means is 7:15. 5
17. Using matrix method solve 5
- (a) $4x + 3y + 2z = 60$;
 $x + 2y + 3z = 45$;
 $6x + 2y + 3z = 70$.
- OR**
- (b) $3x - 4y + 2z = -1$
 $2x + 3y + 5z = 7$
 $x + z = 2$

18. (a) Using graphical method, Maximize $Z = 4x + 3y$ subject to the constraints $x \geq 0, y \geq 0, x \leq 400, y \leq 700, x + y \leq 800$ and $2x + y \leq 1000$. 5

OR

- (b) Maximize and Minimize $Z = 50x + 15y$ subject to the constraints $x + y \leq 16, 5x + y \leq 100, x \geq 0, y \geq 0$. 5

PART-C
(BASIC CALCULUS – 16 MARKS)

19. Choose the correct answer from the options given below: 4x1=4

(a) $\lim_{x \rightarrow 0} \frac{e^{3x} - 1}{x} = \underline{\hspace{2cm}}$

- (i) 1/3 (ii) 3 (iii) 2 (iv) 1

(b) if $y = \cos x^3$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$

- (i) $-3x \sin x^3$ (ii) $-x^2 \sin x^3$ (iii) $-3x^2 \sin x^3$ (iv) $-x^3 \sin x^3$

(c) $\int 3^x dx = \underline{\hspace{2cm}}$

- (i) $\frac{3^x}{\log 3} + c$ (ii) $\frac{3^x}{3 \log 3} + c$ (iii) $\frac{3^x}{\log 3^x} + c$ (iv) $3^x \log 3 + c$

(d) $y = \sqrt{\sin x}, \frac{dy}{dx} = \underline{\hspace{2cm}}$

- (i) $\frac{\cos x}{\sqrt{\sin x}}$ (ii) $-\frac{\cos x}{2\sqrt{\sin x}}$ (iii) $\frac{\cos x}{2\sqrt{\sin x}}$ (iv) $\frac{\cos x}{\sqrt{2 \sin x}}$

20. Show that the function $f(x) = \begin{cases} 3x - 2 & \text{when, } x \leq 0 \\ x + 1 & \text{when, } x > 0 \end{cases}$ is discontinuous at $x = 0$ 2

21. Evaluate $\lim_{h \rightarrow 0} \frac{\sqrt{x+h} - \sqrt{x}}{h}$ 2

22. Differentiate $\sqrt{(x-1)(x-2)(x-3)}$ w.r.t x 2

23. (a) Find dy/dx $y = (\tan x)^{\cot x} + (\cot x)^{\tan x}$ 3

OR

(b) Evaluate: $\int \frac{x^2}{1+x^6} dx$

24. Evaluate: $\int \tan^{-1} \left(\frac{\sin 2x}{1 + \cos 2x} \right) dx$ 3

GEOLOGY**(Theory)****SAMPLE QUESTION PAPER****Full Marks – 70****Time – 3 Hours****General Instructions :**

- (i) All questions are compulsory.
 (ii) Marks for each question are indicated against it.
 (iii) Please write down the question number before attempting it.

1. Choose the correct word from the following:

14×1=14

- (a) Columnar structure is found in
 (i) Tensional joints (ii) Sheet joints (iii) Tectonic joints (iv) Shear joints
- (b) Any upward convex structure
 (i) Antiform (ii) Anticline (iii) Syncline (iv) Synform
- (c) Fault with circular like outcrop on a level surface
 (i) Arcuate (ii) Radial (iii) Encheleon (iv) Parallel
- (d) Fold in which the limb angle is less than 30° .
 (i) Tight fold (ii) Closed fold (iii) Open fold (iv) Loose fold
- (e) Total displacement due to fault
 (i) Net slip (ii) Stratigraphic throw
 (iii) Hade (iv) Heave
- (f) Original cavities in rock is found in
 (i) Solution cavities (ii) Breccia
 (iii) Pore spaces (iv) Volcanic pipe
- (g) Geological investigation of dam required the study of
 (i) Physiography (ii) Fossils (iii) Structures (iv) Lithology
- (h) Detached blocks of bed rock that move down the hill
 (i) Slump (ii) Rock slide (iii) Creep (iv) Rock fall
- (i) Springing back of rock as a result of released of energy is
 (i) Fore shock (ii) Elastic limit (iii) Elastic rebound (iv) After shock
- (j) Artesian well can occur in
 (i) Perched aquifer (ii) Unconfined aquifer
 (iii) Recharge area (iv) Confined aquifer

- (k) Horny calcareous plate which close the aperture of gastropods
 (i) Suture (ii) Operculum (iii) Apex (iv) Whorl
- (l) A species of gastropods
 (i) Turritella (ii) Arca (iii) Terebratula (iv) Orthis
- (m) The embryonic shell prodissoconch belongs to
 (i) Brachiopods (ii) Ammonoids (iii) Pelecypods (iv) Gastropods
- (n) The word fossils is derived from
 (i) Latin (ii) Greek (iii) Roman (iv) Italian.

2. Answer the following questions :

7×2=14

- (a) (i) What is earthquake ?

OR

- (ii) What is water table ?

- (b) What is carbonization ?

- (c) What are sheet joints ?

- (d) What is metasomatic replacement ?

- (e) Define tenor.

- (f) What is geosynclines ?

- (g) Define eluvial placers.

3. What are the description of joints? 3

4. Explain the different types of faults on the basis of rake of fault. 3

5. What is the difference between asymmetrical and symmetrical faults ? 3

6. What are primary and secondary mineral deposits? 3

7. Write the nature and mode of preservation of fossils. 3

8. What is the difference between umbilicus and columnella in gastropods? 3

9. Describe the occurrence of ground water beneath land area. 3

10. What are the different types of dams? 3

11. (a) Write short notes on precipitation that occur in Mizoram. 3

OR

- (b) What are the six green house gases? 3

12. (a) What is fold ? Explain with a diagram the different parts of fold. 3+2=5

OR

- (b) Describe with a neat diagram the terminologies associated with a fault. 3+2=5

13 (a) Show with a labelled diagram the morphological characters of gastropods. 3+2=5

OR

- (b) Explain briefly with a neat diagram the morphological characters of Pelecypods. 3+2=5

14. (a) What is spiral angle? What are the different variety of coiled shell of gastropods? 2+3=5

OR

- (b) Define hinge. What are the different types of dentition in Pelecypods? 2+3=5