

SOLUTION & MARKING SCHEME
for
SAT 2020
Std. VIII

1. Composition full marks 20

Heading : A proper and suitable Heading with suggestive phrases 2

Structure of the Essay: 4

- Different Paragraphs
- Uniformity in the size of the paragraphs
- Introduction
- Conclusion

Understanding of the topic: 4

- Good Knowledge on the topic
- Sufficient ideas on the topic

Expression and Elaboration of Ideas: 4

- Ability to Express Ideas well
- Able to elaborate at ease on the chosen topic
- Signs of awareness/ good arguments

Grammar: 4

- Tenses
- Brevity and Conciseness in Expression
- Good Vocabulary
- Spelling and Punctuation

Overall Presentation: 2

- Good Handwriting
- Clean Presentation

N.B. Story should be original and self composed.

Minus marks for the following-

- I Title missing
- li introduction
- lii spelling and grammatical errors
- lv essay to have paragraphs
- v relevance to the topic given
- vi a good conclusion
- vii no. of words used
- viii 1 mark to be deducted for three spelling errors
- ix story should be original (self composed)

2 LETTER WRITING

Marks to be awarded for

Format , body, expression

Informal format 2.5 body 2.5 expression 5 total 10

Formal format 3 body 2 expression 5

Q 3 Comprehension

Word meaning (4)

a. despised b. making stronger c. cut,detached d. crushed under foot

b.i – only one tree in the street known as GaliRamnath (2)

- ancient banyan tree that had grown through the cracks of an abandoned mosque

- narrow street with cobbled stones.

ii. Ali's kite was caught in the branches of the banyan tree (1)

iii - a kite - made it of bamboo paper and thin silk (2)

- a pail pink kite with a small green tail

iv - he made it for his own amusement (2)

- for the benefit of his grandson

C Precis points (8)

i adults flew kites

ii battles were fought in the sky

iii. kites swerving, swooping and tangling till the string severed

iv the defeated liberated kite would float away

v good deal of betting on the outcome

vi. the nawab with his retinue participated in this noble pastime

Q4 PHRASES (6)

a. famous- adjective d sleepless-adjective

b. heartily- adverb e. what to do- noun phrase

c. then- adverb f. to be wise after the event- noun phrase

b. Analyses of sentences (6)

i. The (attribute) primeminister(subject) appointed (verb) him (object) Chairman of the committee (complement)

ii They (subject) brought(verb) her (attribute of object) warrior (object) dead (attribute of object) home (adverbial qualification)

iii The (attribute) shepherd (subject) heard (verb) a barking sound (complement) early morning (adverbial qualification)

iv. Your (attribute) actions (subject) have caused (verb) us (object) immense pain (complement)

v. Her (attribute) absence (subject) has been missed (verb) by all and sundry (complement)

vi. You (subject) tell (verb) her (object) to open the door (complement)

c. PREPOSITIONS (6)

i in ii upon iii over iv. with v in vi up

d. PARTS OF SPEECH (6)

i calmness ,diligence (noun)

ii enlighten (verb)

iii logical (adjective)

iv possibility (noun)

v humility (noun)

e.

FIGURES OF SPEECH (3)

i Metaphor ii. personification

iii. Rhetoric question f. CORRECT FORM OF VERB (3)

1. was asked 2. would 3. could have 4. did 5. got 6. thought

Ques 1:

(1x10=10)

Give one word for the meanings of the following from the text you have read:

- a. **Dislodged**
- b. **Vindictive**
- c. **Assortment**
- d. **Bridle**
- e. **Detained**
- f. **Personages**
- g. **Apprentice**
- h. **Elves**
- i. **Faculty**
- j. **Resume**

Ques 2

(4X5=20)

- a. **–one of them had imitated the cries of man in distress (1) –they decided to hide in a place where they could stay for two to three hours(1) –till all the people of the house fall asleep(1)One of them knew about a closet that is opened in twelve months so they decided to hide inside the closet(1)**
- b. **Hubert kicked the door since his hands were tied up.(1)-a footman opened the door and seized Hubert by his shoulder (1)and pulled him to the dining hall (1) and showed him up to Sir Simon. (1)**
- c. **The narrator here reflects /contemplates on his action of mending the wall/ he asks himself is he walling /limiting himself in the confines of the wall/or is he keeping out the outside world/he is unsure of what or whom is he blocking /is he limiting himself or is he blocking the outside world/does the wall secure him or will it alienate him.(accept answers in this line of thought)(marking 4marks- subjective)**

- d. –all the parts of the windmill was and its machinery was complete(1)-sails were made of linen and whirled round very swiftly (1)- a of wind puff from Issac’s mouth or from a pair of bellows was sufficient to set the sails on motion(1) curious thing about it was if a handful of grains of wheat were put into the hopper it would soon be converted into snow white flour. (1)
- e. – that he was vindictive, took pleasure in hurting others,(1) all the boys were scared of him ,even his mother called him rakshasha, (1) his pockets bulged with strange things –a live parrot,an assortment of eggs, or a prickly hedgehog(1)- if he quarrelled with anyone he would charge him head on like a bull or viciously kick and bite him. (1)

Ques:3

- a. Issac said to his friend. (1/2+1/2)
- b. One of the sons asked Hubert. (1/2+1/2) deduct half marks if the word asked is not used.
- c. One of the thieves said to Hubert. (1/2+1/2)
- d. The narrator told Bodh Raj. (1/2+1/2)
- e. The narrator asked Bodh Raj. (1/2+1/2) deduct half marks if the word asked is not used.

Ques 4: 1/2x5=5

Ques 5: Read the extract given below and answer the questions that follow:

“He moves in darkness as it seems to me,

Not of woods only and shade of trees”

- a. Poem-Mending Wall (1) Poet-Robert Frost (1)
- b. “He” refers to the speaker’s neighbour (1) “Me” refers to the Speaker.(1)
- c. –he is reluctant to change and blindly follows his father’s words without reasoning and logic. (2)
- d. “darkness” means ignorance/ reluctance to accept new ideas (1) Justification based on these ideas.(3)

Ques 6:

Read the extract given below and answer the questions that follow:

“It was set going not by wheels and weights...”

- a. The Ingenious Scientist (1) Nathaniel Hawthorne (1)
- b. “It” ___ Curious clock (1) Speciality—it worked with the dropping of water. (1)
- c. Sundial.(1) Sir Issac Newton(1). Note: no “other things” will be accepted as it is not in reference to the given context.
- d. ___to gauge the strength of wind,he jumped his jump he against the wind and by the length of his jump he could calculate the force of the wind as gentle breeze, a brisk gale or a tempest. (4) (if all the points are covered else deduct ½ half marks .)

Ques 7:

Read the given extract and answer the questions that follow:

“All the Christmas guest now perceived that this was no longer sport, but serious earnest.”

- a. The act of conjuring a tempest in a closet is being referred to no longer a sport. (1) ___as snuff was poured into the closet sneezes of men and spasmodic groans could be heard.(1)
- b. ___guns and cudgels were procured, (1) all men servants were called in, (1) and were positioned outside the closet (1)
- c. ___the three thieves were far from attacking, (1) were found crouching in the corner, (1) gasping for breathe, (1) they made no resistance, (1)were pinioned and placed in the outhouse till morning.(1) note: marks to be deducted if all the given points are not in the answer.

Ques 8:

Read the given extract and answer the questions that follow:

“Must have gone in search of food. They should be back soon.”

- a. Bodh Raj said to the narrator. (1+1)
- b. The Ganga Mynah chicks parents.(1) It wasn't usually found in these areas.(1)

- c. The speaker knew a lot about birds (1) as they were his favourite targets.(1) After school the speaker would be off on his wanderings shooting at birds with his catapult. (1)
- d. Proves the statement as Bodh Raj undergoes a change in his character. Note: answer developed along this idea. (3)

HINDI

मूल्यांकनका आधार _ **section A(40Marks)**

क) निबंध-अंकप्राप्त---- **12/15**

शब्दसीमापर ध्यान दें। विषयवस्तु

भाषाशैली अभिव्यक्ति सुंदर हो एवं सभी बिंदुओं को कम से कम अनुच्छेद द्वारा लिखें।

वर्तनी एवं भाषासंबंधी त्रुटियां ना हो- लिखावट सुंदर हो। मुहावरा, लोकोक्ति, विद्वानों के वचन,

कविता की कुछ पंक्तियां एवं उदाहरण भी हो।

ख) पत्र अंकप्राप्त --- **6/7**

-पत्रका प्रारूप सही , पत्रमें दिए गए सभी बिंदुओं पर विचार, वर्तनी की अशुद्धियां नहीं के बराबर।

पत्रमें रिश्ते का ध्यान रखते हुए भाषा का प्रयोग।

ग) अपठित गद्यांश **8/10**

आवश्यक बिंदुओं पर प्रकाश डालें, उत्तर अपने शब्दों में लिखने का प्रयास करें। उद्धरण के वाक्यों को उतार दे, ऐसा करने पर अंक कर सकते हैं। वर्तनी की त्रुटियां ना हों।

घ) व्यावहारिक व्याकरण 8/8

व्याकरण में मात्राओं पर विशेष ध्यान दें अन्यथा अंक नहीं मिलेंगे। पर्यायवाची शब्द उतारने ही दे जितने पूछे जाएं। एक से अधिक विलोम लिखने पर पहला ही विलोम स्वीकार्य होगा। दूसरा सही होने पर भी मान्य नहीं होगा। इसी तरह जितने भी प्रश्न पूछे जाएं निर्देशानुसार उत्तर दें, नहीं तो अंक नहीं मिलेंगे।

खण्ड- क

3. (क) राजाने सेवक को उपहार स्वरूप मिले चार फूलदानों की सुरक्षा का कार्य सौंपा था। इसके साथ ही यह शर्त भी जोड़ी थी कि यदि किसी कारणवश यह फूलदान टूट गया इनके रखरखाव में कोई भी लापरवाही बरती गई तो उसे मृत्युदंड दिया जाएगा।
(ख) इस कहानी में महाराज दो बार क्रोधित हुए। प्रथमतः जब सेवक से एक बेशकीमती फूलदान टूट गया था तब दूसरी बार तब क्रोधित हुए, जब फाँसी के समय अपराधी सेवक ने अन्य बचेतीनों फूलदानों को भी जमीन पर पटक कर तोड़ दिया।
(ग) तेनाली राम उस निर्दोष सेवक का जीवन बचाना चाहते थे, इसी कारण वश उन्होंने राजा को समझाने का अत्यंत प्रयास किया, परंतु राजाने उनकी बात न मानी। तदुपरांत तेनाली राम ने स्वयं कारागार में जाकर पूरी घटना की जानकारी प्राप्त की। अंततः उन्होंने सेवक के कान में एक उपाय बताया, जिससे संभवतः उसकी जान बचाई जा सकती थी।
(घ) महाराज को वार्षिक उत्सव के आयोजन के दौरान किसी राजा द्वारा यह चार कीमती फूलदान उपहार में दिए गए थे। राजाने उन फूलदानों की सुरक्षा हेतु सेवक नियुक्त किया। सेवक की गलती से एक फूलदान टूट गया जिस कारण राजाने उसे मृत्युदंड दे दिया। मृत्युदंड के समय अपनी अंतिम इच्छा अनुसार सेवक ने बाकी बचेतीन फूलदान मंगवाए और जमीन पर पटक कर तीनों फूलदान भी तोड़ दिए।
(ङ) सेवक को अन्य फूलदान तोड़ने का मौका मृत्युदंड पर अपनी अंतिम इच्छा पूरी करते समय मिला। उसने कहा कि उसने इन फूलदानों को इसलिए तोड़ा कि अन्य तीन निर्दोषों की जान बचाई क्योंकि मानव जीवन इन फूलदानों से अत्यंत कीमती है। इस बात को सुनकर राजा को अपनी गलती का एहसास हुआ और उन्होंने तुरंत फाँसी स्थगित कर दी।

4. क. विज्ञ, अनागत
ख. दक्षता, पटु, चातुरी, कुशलता, प्रवीणता
अतुल, अपूर्व, अनन्य, अद्भुत
ग. अखिलेश्वर, अलभ्य
घ. रचना-परिश्रमी

अपराध-इलाज

ड. अर्थको ध्यानमें रखते हुए मुहावरे से वाक्य स्वयं बनाएं।

च. ओछा व्यक्ति दिखावा अधिक करता है

अच्छे व्यक्ति को सभी अच्छे लगते हैं

छ. आँख, ऊंट

ज. साप्ताहिक, सामयिक

नोट: खंडखमै प्रश्नों के उत्तर सटीक होने चाहिए तथा वर्तनी सही होनी चाहिए।
सप्रसंग व्याख्या में कविकानाम पाठकानाम एवं भावसही वर्तनी के साथ लिखें।
आशय स्पष्ट करने में लेखक एवं पाठकानाम नहीं लिखना है।
शब्दार्थ में गलत वर्तनी पर पूरे अंक कट जाएंगे।
परिभाषा या व्याकरण भाग सही लिखने पर पूरे अंक प्राप्त हो सकते हैं।
खण्ड- ख

1. क. पंडित जानकीनाथ को उनका साहस, दया, आत्मबल, तथा उदारता जैसे गुणों के कारण दीवान पद के लिए चुना गया था। उन्होंने स्वयं जख्मी होते हुए भी गाड़ीवाले किसान की मदद करके उसकी गाड़ी को नाले से निकलवाया था। इससे उनका नम्र व्यवहार परिलक्षित होता है।
ख. कविके अनुसार यह संसार नफरत, द्वेष की आग में जल रहा है। हमें अपने कार्यों से, व्यवहार से इस आग को समाप्त करके समाज में मलयाचल पर्वत से आने वाली शीतल वायु की तरह शीतलता और शांतिलाने का प्रयास करना चाहिए।
ग. काबुलीवाले और मिनीकी मुलाकातें धीरे-धीरे बढ़ने लगी, मिनी अब काबुलीवाले से सहज होने लगी उसका अंधविश्वास भी दूर हो गया और उससे उसपर किसी प्रकार का संदेह नहीं रहा। वह प्यार से उसकी बातें सुनता उससे मेवा देता था। वह मिनी को अपनी बेटी की तरह प्यार करता था धीरे-धीरे दोनों में घनिष्ठता बढ़ने लगी। मिनीकी माँ को या घनिष्ठता पसंद नहीं थी उन्हें यह हर पल लगता था कि काबुलीवाला कहीं मिनीका अपहरण न कर ले और यह आशा का समाज में होने वाली गतिविधियों के कारण थी।
घ. बच्चों का मानसिक और भावनात्मक पोषण इस पाठ के आधार पर प्रायः यह देखने में आता है कि बच्चे स्वयं अकेले रहना चाहते हैं। खेलने से अधिक टेलेविजन, कंप्यूटर, मोबाइल आदिके सामने बैठना पसंद करते हैं। इसी कारण उनकी आपस में दूरी बढ़ रही है। संयुक्त परिवार ना होकर एकाकी परिवार होने के कारण भी यह समस्या अभिभावकों के समक्ष आ रही है।
ड. हमारा भारत वर्ष सांस्कृतिक परंपराओं से अत्यंत समृद्ध है। अनेकता में एकता का अद्भुत संगम इस देश में दिखाई देता है।

भारतमेंमुख्यतःतीनराष्ट्रीयपरवहैराष्ट्रीयस्तरपरमनानेकेलिएहमसबप्रतिबद्धहैं 26 जनवरी 15 अगस्तएवं 2 अक्टूबरइसश्रेणीमेंगिनेजातेहैं।

इनअवसरोंपरहमअपनीसंस्कृतिसेजुड़ेसांस्कृतिककार्यक्रमोंकोमनाकरअपनीखुशियोंकोबांटतेहैंऔरउनमेंसम्मिलितहोतेहैं।येसांस्कृतिकसमारोहहमारेदेशकीबहुमूल्यधरोहरहै।इसअवसरपरराष्ट्रीयगीत , महानकवियोंकीदेशभक्तिसेसंबंधितरचनाएंहमारेअंदरउत्साहएवंआनंदकासंचारकरतेहैं।

च.काबुलीवालाजेलसेछूटकरजबलौटातोउसेपहचाननाअसंभवसाथापरंतुउसकीमुस्कानदेखकरलेखकनेउसेपहचानलिया।लेखककेमनमेंएकअज्ञातभयथाआजउनकीबेटीकाविवाहहैऔरऐसेमेंएकअपराधीकाघरआना।काबुलीवालेनेकहाकिउसेमिनीबिटियामेंअपनीबिटियाकाचेहरादिखाईदेताहैवहसिर्फएकबारउससेमिलनाचाहताहै।लेखककोउसकीआँखोंमेंअपारस्नेहदिखाईपड़ा।

लेखकउसकेमनोभावोंकोसमझनेकाप्रयासकरतेहुएव्यथितहोउठे।

उन्होंनेउसेमिनीबिटियासेमिलवायाऔरउसेअपनेदेशलौटनेकोकहा।

छ.किसानकीअनाजभरीगाड़ीएकगड्ढेमेंफँसगईथीजिसकेकारणवहबहुतदेरसेएकहीस्थानपररूकाहुआथा।

रियासतमेंजिसप्रतियोगिताकेलिएप्रतिभागीआएहुएथेवहउससमयहाँकीकामैचखेलकरलौटरहेथे।

परंतुउनमेंसेकिसीनेभीकिसानकीओरध्याननहींदियाकुछनेदियाभीमगरबंदआँखोंसे।

किसानउनकीओरआशाभरीनजरोंसेदेखरहाथा।

2. प्रस्तुत

पद्यांशहमारीपाठ्यपुस्तक'अंकुश'हिंदीपाठमालाके'इतनेऊंचेउठो'नामककवितासेलियागयाहैजिसकेकवि'श्रीद्वारिकारिप्रसादमाहेश्वरीजी'हैं।कविइनपंक्तियोंकेमाध्यमसेयुवाओंमेंसृजनशीलसमाजकेनिर्माणकीबातकरतेहुएकहतेहैंकि,

आप

स्वयंआगेबढ़करवर्तमानकोसंभालनेकाप्रयासकरोएसमाजकोअपनीकल्पनाओंकोमूर्तरूपदेनेकीकोशिशकरोरोजिसप्रकारचित्रकारअपनीतूलिकासे,

कूचीसेचित्रमेंरंगभरनेकाप्रयासकरताहैसंगीतकाररागोंमेंनएस्वरोंकोपिरोताहैउसीप्रकारहमेंभीअपनेसमाजकोनयारूपदेनेकेलिएअपनेपरिवेशमेंअपनेकालमेंएकऐसीसृष्टिकानिर्माणकरनाहैजोपूर्णतयामौलिकहो, नईहो।

कविकेअनुसारयुवावर्गकोअपनीकल्पनाओंकोसाकारकरनेकेलिएस्वयंप्रयासकरनाहोगा।

3. गाड़ीवान

स्वयंसुजानसिंहहीथेजबउन्हेंलगाकिउनकीमददकरनेवालेयुवकनेशायदउन्हेंपहचानलियाहैतोउन्होंनेकहाकिपापानीमेंगहरीडुबकीलगानेपरहीसच्चेमोतीमिलतेहैं।

परिश्रमीतथासदाचारीव्यक्तिहीजीवनमेंसफलतापातेहैंसुजानसिंहपिछले 1

महीनेसेसभीप्रतिभागियोंकीगतिविधियोंकोदेखरहेथेउनमेंसेउन्हेंपंडितजानकीनाथकीगतिविधियांऔरोंसेअलगप्रतीतहोरहीथी।उन्होंनेउनकेव्यवहारकोबड़ीहीबारीकीसेपरखाऔरउपयुक्तपदकेलिएसच्चेमोतीकीखोजकी।

4. इच्छा, वास्तविक, निर्माण, ध्यानसेदेखना, प्रमाणपत्र, सदारहनेवाला, मनगढ़ंत, नुकसान, सम्मानित, पालनेवाला

5. स्वतंत्र, स्वकर्म, स्वरोजगार

अनपढ़, अनबन, अनजान, अनदेखा, अनमोल

6. संधि काशाब्दिक अर्थहैजोड़ना। दो वर्णोंयाअक्षरोंकेमेलकोसंधिकहतेहैं, जैसेकपि + ईश।

7. ऐसे शब्दजिनमेंलिंग, वचन, कारककेकारणकोईपरिवर्तननहींहोताहैउन्हेंअव्यययाअविकारीशब्दकहतेहैं। अविकारीशब्दकेचारभेदहैं-

क्रिया, विशेषण, संबंधबोधक,समुच्चयबोधकयायोजक,विस्मयादिबोधक ।

8. जगत् + नाथ, वार्षिक+उत्सव,नै+अक,नि: |+काम
 9. सम् + पूर्ण, गण + ईश, भानु + उदय, सप्त + ऋषि
 10. धीरे - धीरे , तेज, अचानक, प्रतिदिन
-

PHYSICS

SECTION – A

Answer 1.

(a) joule (J). [01 MARK FOR
CORRECT ANSWER]

1J = 0.24 cal or 1 cal = 4.2 J. [01 MARK FOR CORRECT ANSWER]

(b) 1st Law: The angle of incidence is equal to the angle of reflection. [01 MARK FOR
CORRECT ANSWER]

2nd Law: The incident ray, the reflected ray and the normal all lie in the same plane at the point of incidence.

[01 MARK FOR CORRECT ANSWER]

(c) ANY TWO. [01 MARK FOR EACH CORRECT
ANSWER]

(d) 20 Hz – 20 kHz. [01 MARK FOR EACH CORRECT ANSWER]

(e) ANY TWO. [01 MARK FOR EACH CORRECT
ANSWER]

Answer 2.

(a) $i = 0^\circ$ and $r = 0^\circ$. [01 MARK FOR EACH CORRECT ANSWER]

(b) (i) Infinite.

[01 MARK FOR CORRECT ANSWER]

(ii) 3.

[01 MARK FOR EACH CORRECT ANSWER]

(c) High directivity and high energy content.
ANSWER]

[01 MARK FOR EACH CORRECT

(d) (i) Inversally proportional.

[01 MARK FOR CORRECT ANSWER]

(ii) Directly proportional.

[01 MARK FOR CORRECT ANSWER]

(e) kelvin (K).

[01 MARK FOR CORRECT ANSWER]

T (in K) = $273.15 + t$ (in °C)

[01 MARK FOR CORRECT ANSWER]

Answer 3.

(a) (i) Concave Mirror.

[01 MARK FOR CORRECT ANSWER]

(ii) Concave Mirror.

[01 MARK FOR CORRECT ANSWER]

(b) ANY TWO.
ANSWER]

[01 MARK FOR EACH CORRECT

(c) ANY TWO.
ANSWER]

[01 MARK FOR EACH CORRECT

(d) (i) 330 ms^{-1}

[01 MARK FOR CORRECT ANSWER]

(ii) $3 \times 10^8 \text{ ms}^{-1}$

[01 MARK FOR CORRECT ANSWER]

(e) Convex Mirror.

[01 MARK FOR CORRECT ANSWER]

Since, it gives a wider field of view.

[01 MARK FOR CORRECT ANSWER]

Answer 4.

(a) ANY TWO.
ANSWER]

[01 MARK FOR EACH CORRECT

(b) (i) 0°C

[01 MARK FOR CORRECT ANSWER]

(ii) 4°C.

[01 MARK FOR CORRECT ANSWER]

(c) (i) NO CHANGE.

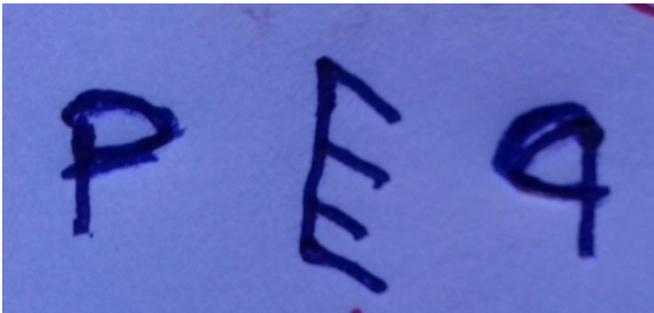
[01 MARK FOR CORRECT ANSWER]

(ii) NO CHANGE.

[01 MARK FOR CORRECT ANSWER]

(d) Lateral inversion.
ANSWER]

[01 MARK FOR CORRECT



[01 MARK FOR CORRECT DIAGRAM]

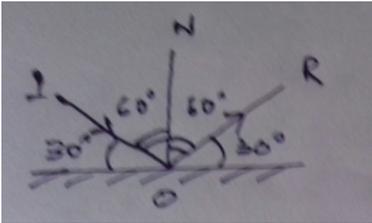
(e) ANY TWO.
ANSWER]

[01 MARK FOR EACH CORRECT

SECTION – B

Answer 5.

(a)



[01 MARK FOR BOTH ARROWS CORRECTLY LABELLED]

[01 MARK FOR BOTH ANGLES CORRECTLY LABELLED]

Angle between the incident and the reflected ray = 120° .

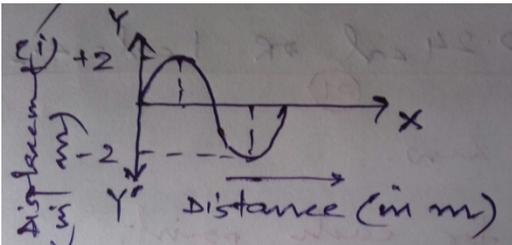
[01 MARK FOR CORRECT ANSWER]

(b) ANY THREE.

[01 MARK FOR EACH CORRECT ANSWER]

(c)

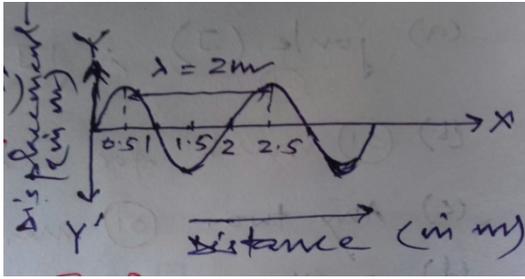
(i)



[01 MARK FOR BOTH AXES CORRECTLY LABELLED]

[01 MARK FOR AMPLITUDE CORRECTLY LABELLED]

(ii)



[01 MARK FOR BOTH AXES CORRECTLY LABELLED]

[01 MARK FOR WAVELENGTH CORRECTLY LABELLED]

Answer 6.

(a) $f = 1/T = 1/2 \text{ sec} = 0.5 \text{ Hz.}$

[01 MARK FOR

CORRECT ANSWER]

No.

[01 MARK FOR CORRECT ANSWER]

Since, the frequency of vibration is less than the audibility limit.

[01 MARK FOR CORRECT ANSWER]

(b) $f = 75/60 \text{ sec} = 1.25 \text{ Hz}$

[01 MARK FOR CORRECT

NUMERICAL VALUE]

$T = 1 / 1.25 \text{ Hz} = 0.8 \text{ sec}$

[01 MARK FOR CORRECT NUMERICAL VALUE]

[01 MARK FOR CORRECT UNIT IN EITHER OF THE ABOVE ANSWERS]

(c) (i) 48 cm in front of the mirror.

[01 MARK FOR CORRECT ANSWER]

(ii) Inverted. Real. Same size.

[01 MARK FOR EACH CORRECT ANSWER]

Answer 7.

(a) (i) 1 m behind the mirror.

[01 MARK FOR CORRECT

ANSWER]

(ii) 2m.

[01 MARK FOR CORRECT ANSWER]



[01 MARK FOR CORRECT DIAGRAM]

(b) $f = v / \lambda$

[01 MARK FOR

CORRECT ANSWER]

$$f = 20 \text{ ms}^{-1} / 100 \text{ m}$$

[01 MARK FOR CORRECT ANSWER]

$$f = 0.2 \text{ Hz.}$$

[01 MARK FOR CORRECT ANSWER]

(c) $\lambda = v / f$

[01 MARK FOR CORRECT

ANSWER]

$$\lambda = 0.3 \text{ ms}^{-1} / 20 \text{ Hz}$$

[01 MARK FOR CORRECT ANSWER]

$$\lambda = 3 \text{ ms}^{-1} / 20 \times 10 \text{ s}^{-1}$$

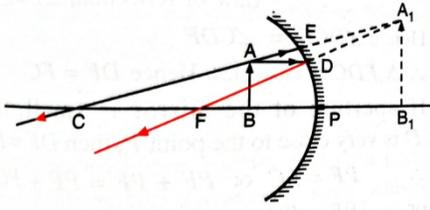
[01 MARK FOR CORRECT ANSWER]

$\lambda = 1.5 \times 10^{-2} \text{ m.}$

[01 MARK FOR CORRECT ANSWER]

Answer 8.

(a)



[01 MARK FOR CORRECT LABELLING OF C, F, AND P]

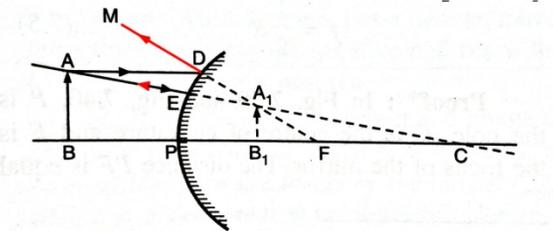
[01 MARK FOR INCIDENT RAYS WITH ARROW HEADS]

[01 MARK FOR VIRTUAL IMAGE REPRESENTED BY DOTTED LINES]

(i) Erect [01 MARK FOR CORRECT ANSWER]

(ii) Magnified [01 MARK FOR CORRECT ANSWER]

(b)



[01 MARK FOR CORRECT LABELLING OF C, F, AND P]

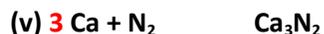
[01 MARK FOR INCIDENT RAYS WITH ARROW HEADS]

[01 MARK FOR VIRTUAL IMAGE REPRESENTED BY DOTTED LINES]

ANY TWO PROPERTY. [01 MARK FOR EACH CORRECT ANSWER]

Q4. Balance the following equations:

(1 MARK EACH)



Q5. Write the acidic and basic radicals in the following compounds:

(1 MARKS EACH)

	BASIC	ACIDIC
(i) Zinc carbonate	ZINC/ Zn^{2+}	CARBONATE/ CO_3^{2-}
(ii) Barium sulphate	BARIUM/ Ba^{2+}	SULPHATE/ SO_4^{2-}
(iii) Ferrous sulphide	FERROUS/ Fe^{2+}	SULPHIDE/ S^{2-}
(iv) Ammonium sulphate	AMMONIUM/ NH_4^+	SULPHATE/ SO_4^{2-}
(v) Sulphuric acid	HYDROGEN/ H^+	SULPHATE/ SO_4^{2-}

Q6. State the type of reaction each of the following represents:

(1 MARKS EACH)

(i) $Mg(OH)_2 \rightarrow MgO + H_2O$	DECOMPOSITION
(ii) $NaOH + HCl \rightarrow NaCl + H_2O$	DOUBLE DECOMPOSITION
(iii) $2H_2O_2 \rightarrow 2H_2O + O_2$	DECOMPOSITION
(iv) $Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$	DISPLACEMENT
(v) $2KNO_3 \rightarrow 2KNO_2 + O_2$	DECOMPOSITION

Q7. Name:

(1 MARKS EACH)

- (i) A compound which produces carbon dioxide on heating. $CaCO_3$
- (ii) A metal carbonate which is stable to heat. Na_2CO_3
- (iii) The most reactive metal in the activity series of metals. POTASSIUM
- (iv) A reddish brown gas produced when a metal nitrate is heated. NITROGEN DIOXIDE/ NO_2
- (v) A nitrate which produces oxygen as the only gas. $KNO_3/NaNO_3$

Q8. Complete the following equations:

(1 MARKS EACH)

- (i) $CuCO_3 \rightarrow CuO + CO_2$
- (ii) $Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$
- (iii) $C + 2S \rightarrow CS_2$
- (iv) $CaO + H_2O \rightarrow Ca(OH)_2$
- (v) $Cu(OH)_2 \rightarrow CuO + H_2O$

SECTION B (40 MARKS)

Q1.(a) When lead nitrate crystals are heated

- (i) reddish brown gas is evolved (1)
- (ii) yellow residue is left (1)

It is a thermal decomposition reaction. (1)

(b) The reaction in which two elements combine together to form a compound is called synthesis.

(1) example: Carbon burns in oxygen to form Carbon dioxide. (1)



(c) A simultaneous reversible decomposition reaction brought about by heat is called thermal dissociation. (1)



A reaction in which a compound breaks to form two or more simpler compounds is called a thermal decomposition reactions. (1)



Q2. (a) molecular mass of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} = 63.5 + 32 + (16 \times 4) + 5 \times (2 + 16)$ (1)

$$= 159.5 + 90 \quad (1)$$

$$= 249.5 \quad (1)$$

(b) Relative atomic mass is the number of times one atom of the element is heavier than $1/12^{\text{th}}$ times of the mass of an atom of Carbon-12. (1)

The unit of atomic mass is atomic mass unit. (1)

It is represented as u or a.m.u. (1)

(c) $\text{RMM} = 23 \times 2 + 12 + 16 \times 3 + 10 \times (2 + 16)$ (1)

$$= 286 \quad (1)$$

% composition of water = $180/286 \times 100$ (1)

$$= 62.9 \quad (1)$$

Q3. (a) Valency is the combining capacity of an atom or a radical.

OR

Valency is the number of electrons lost or gained or shared during a chemical reaction. (1)

Certain elements exhibit more than one valency. Such elements are said to have variable valency. (1)

An element exhibiting variable valency is iron/copper/mercury/lead/tin. (1)

(b) (i) $\underline{\text{Ba}}\text{F}_2$ 2 (ii) $\underline{\text{N}}\text{O}_2$ 4 (iii) $\underline{\text{Sn}}\text{Cl}_4$ 4 (1 mark each)

(c) Ions which are made of two or more atoms are called polyatomic ions. (2)

Example: SO_4^{2-} , CO_3^{2-} or any other example (1)

Valencies: 2, 2 (1)

Q4. (a) The reaction between an acid and a base that forms salt and water only is referred to as neutralization reaction. (1)

Two applications are (any two): (1+1)

(i) when a bee stings, application of slaked lime or baking soda gives relief from pain.

(ii) when we have acidity, we take milk of magnesia or sodium hydrogen carbonate

- (iii) when acid spills over our body or clothes, ammonia solution is applied
(iv) when the soil becomes acidic due to fertilizers, lime is added

(b) when zinc carbonate is heated in a test tube

(i) gas is produced which turns lime water milky. (1)

(ii) residue is yellow when hot and white when cold (1)

$\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$ (1)

(c) 1 mark for correct equation + 1 mark for balancing

(i) $2\text{KHCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + 2\text{CO}_2 + 2\text{H}_2\text{O}$ (2)

(ii) $\text{Al}_4\text{C}_3 + 12\text{H}_2\text{O} \rightarrow 4\text{Al}(\text{OH})_3 + 3\text{CH}_4$ (2)

SECTION – A

Answer 1.

(a) Required Answer:

$$= a + \{9b - 2a(9a + 3b - 7)\} + 10a - 2b - 7$$

[01 MARK FOR CORRECT EXPRESSION]

$$= a + 9b - 18a^2 - 6ab + 14a + 10a - 2b - 7$$

[01 MARK FOR CORRECT EXPRESSION]

$$= 25a + 7b - 18a^2 - 6ab - 7.$$

[01 MARK FOR CORRECT EXPRESSION]

(b) $6d^3 + 4d^2 - 3d + 5$

x $d^2 + d - 1$

$$-6d^3 - 4d^2 + 3d - 5$$

$$+4d^3 - 3d^2 + 5d + 6d^4$$

[02 MARKS FOR ANY TWO CORRECT EXPRESSION OUT OF THREE]

$$-3d^3 + 5d^2 + 4d^4 + 6d^5$$

$$-5d^3 - 2d^2 + 8d - 5 + 10d^4 + 6d^5$$

[01 MARK FOR CORRECT ANSWER]

(c)

$$-x^3 + x + 4) x^6 - 2x^4 - 8x^3 + x^2 + 8x + 16 (-x^3 + x + 4$$

$$x^6 - x^4 - 4x^3$$

[01 MARK FOR CORRECT EXPRESSION]

(-) (-) (-)

$$-x^4 - 4x^3 + x^2 + 8x + 16$$

$$-x^4 + x^2 + 4x$$

[01 MARK FOR CORRECT EXPRESSION]

(+) (-) (-)

$$-4x^3 + 4x + 16$$

$$-4x^3 + 4x + 16$$

$$(+)\quad (-)\quad (-)$$

$$0$$

$$\text{Quotient} = -x^3 + x + 4.$$

$$\text{Remainder} = 0.$$

[01 MARK FOR CORRECT EXPRESSION]

[01 MARK FOR CORRECT ANSWER]

Answer 2.

(f) $1125 = 3^m \times 5^n$

$3^2 \times 5^3 = 3^m \times 5^n$

[01 MARK FOR CORRECT EXPRESSION]

$m = 2$, and,

[01 MARK FOR CORRECT ANSWER]

$n = 3$

[01 MARK FOR CORRECT ANSWER]

(g) $3 \times 1018 \div 31$
CORRECT ANSWER]

[01 MARK FOR

-9

61)118

-61

57

Required answer = $1024 - 1018$

[01 MARK FOR CORRECT EXPRESSION]

= 6.

[01 MARK FOR CORRECT ANSWER]

(h) $12^{-5} \times 12^{2n+1} = 12^{13} \div 12^7$

$12^{2n+1-5} = 12^{13-7}$

[01 MARK FOR CORRECT EXPRESSION]

$2n - 4 = 6$

[01 MARK FOR CORRECT EXPRESSION]

$$n = 10 / 2$$

[01 MARK FOR CORRECT EXPRESSION]

$$n = 5$$

[01 MARK FOR CORRECT ANSWER]

Answer 3.

$$(f) (a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$$

$$(11)^2 = 81 + 2(ab + bc + ca)$$

[01 MARK FOR CORRECT EXPRESSION]

$$2(ab + bc + ca) = 121 - 81$$

[01 MARK FOR CORRECT EXPRESSION]

$$ab + bc + ca = 20$$

[01 MARK FOR CORRECT ANSWER]

$$(g) 3x - 4y = 4$$

$$(3x - 4y)^3 = 4^3$$

$$(3x)^3 - (4y)^3 - 3 \cdot 3x \cdot 2y \cdot (3x - 2y) = 64$$

[01 MARK FOR CORRECT ANSWER]

$$27x^3 - 8y^3 - 18x \cdot 2y \cdot 4 = 64$$

$$27x^3 - 8y^3 = 64 + 360$$

[01 MARK FOR CORRECT EXPRESSION]

$$27x^3 - 8y^3 = 424$$

[01 MARK FOR CORRECT ANSWER]

$$(h) A = P (1 + RT/100)$$

$$A = P \{1 + (25 \times 4)/(4 \times 100)\}$$

[01 MARK FOR CORRECT EXPRESSION]

$$4000 = 5P/4$$

[01 MARK FOR CORRECT EXPRESSION]

$$P = (4000 \times 4) / 5$$

[01 MARK FOR CORRECT EXPRESSION]

$$P = \text{Rs. } 3200/-$$

[01 MARK FOR CORRECT ANSWER]

Answer 4.

(a) $a^2 - b^2 - 2b - 1$

$$a^2 - (b^2 + 2b + 1)$$

[01 MARK FOR CORRECT EXPRESSION]

$$a^2 - (b + 1)^2$$

[01 MARK FOR CORRECT EXPRESSION]

$$(a + b + 1)(a - b - 1)$$

[01 MARK FOR CORRECT ANSWER]

(b) $12x^2 - 19x - 10$

$$12x^2 - 24x + 5x - 10$$

[01 MARK FOR CORRECT EXPRESSION]

$$12x(x - 2) + 5(x - 2)$$

[01 MARK FOR CORRECT EXPRESSION]

$$(x - 2)(12x + 5)$$

[01 MARK FOR CORRECT ANSWER]

(c) Let, $(a + b) = x$.

$$8x^2 + 14x + 3$$

[01 MARK FOR CORRECT EXPRESSION]

$$8x^2 + 12x + 2x + 3$$

$$4x(2x + 3) + 1(2x+3)$$

[01 MARK FOR CORRECT EXPRESSION]

$$(2x + 3) (4x + 1)$$

$$\{2(a + b) + 3\} \{4(a + b) + 1\}$$

[01 MARK FOR CORRECT EXPRESSION]

$$(2a + 2b + 3) (4a + 4b + 1)$$

[01 MARK FOR CORRECT ANSWER]

SECTION – B

Answer 5.

(a) $(a - b)^2 = a^2 + b^2 - 2ab$

$$6^2 = a^2 + b^2 - 2 \times 16$$

[01 MARK FOR CORRECT EXPRESSION]

$$a^2 + b^2 = 36 + 32$$

[01 MARK FOR CORRECT EXPRESSION]

$$a^2 + b^2 = 68$$

[01 MARK FOR CORRECT ANSWER]

(b) Perimeter = $8y^2 - 9y + 4$

$$\text{Sum of the two sides} = 7y^2 - 5y + 12$$

[01 MARK FOR CORRECT EXPRESSION]

$$\text{Length of the third side} = 8y^2 - 9y + 4 - (7y^2 - 5y + 12)$$

[01 MARK FOR CORRECT EXPRESSION]

$$= y^2 - 4y - 8.$$

[01 MARK FOR CORRECT ANSWER]

(c) A.T.Q.:-

$$(U \times 5 \times 5) / 100 = \{(15600 - U) \times 9 \times 6\} / 100 \times 2$$

[01 MARK FOR CORRECT EXPRESSION]

$$U = (27 \times 15600) / 52$$

[01 MARK FOR CORRECT EXPRESSION]

$$U = 8100$$

$$\text{First part} = U = \text{Rs. } 8100/-$$

[01 MARK FOR CORRECT ANSWER]

$$\text{Second part} = (15600 - U) = \text{Rs. } 7500/-$$

[01 MARK FOR CORRECT ANSWER]

Answer 6.

(a) $(a + b)^2 = (a - b)^2 + 4ab$

$$5^2 = (a - b)^2 + 4 \times 6$$

[01 MARK FOR CORRECT EXPRESSION]

$$(a - b)^2 = 25 - 24$$

$$(a - b)^2 = 1$$

[01 MARK FOR CORRECT EXPRESSION]

$$a^2 - b^2 = (a + b)(a - b)$$

$$a^2 - b^2 = 5 \times 1$$

$$a^2 - b^2 = 5$$

[01 MARK FOR CORRECT ANSWER]

(b) Let, the number of chairs in each row be "C".

A.T.Q.:-

$$C \times C = 2025$$

[01 MARK FOR CORRECT EXPRESSION]

$$C^2 = 2025$$

$$C = (2025)^{\frac{1}{2}}$$

[01 MARK FOR CORRECT EXPRESSION]

$$C = 45.$$

[01 MARK FOR CORRECT ANSWER]

(c) $x^3 - y^3 - 3xy(x - y) = 125$
CORRECT EXPRESSION]

[01 MARK FOR

$$x^3 - y^3 - 3 \times 14 \times 5 = 125$$

[01 MARK FOR CORRECT EXPRESSION]

$$x^3 - y^3 = 125 + 210$$

[01 MARK FOR CORRECT EXPRESSION]

$$x^3 - y^3 = 335$$

[01 MARK FOR CORRECT ANSWER]

Answer 7.

(a) $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

$a^2 + b^2 + c^2 = 92 - 2 \times 15$

[01 MARK FOR CORRECT EXPRESSION]

$a^2 + b^2 + c^2 = 81 - 30$

[01 MARK FOR CORRECT EXPRESSION]

$a^2 + b^2 + c^2 = 51$

[01 MARK FOR CORRECT ANSWER]

(b) $(216)^{1/3} \times (-343)^{1/3}$

[01 MARK FOR CORRECT EXPRESSION]

$6 \times (-7)$

[01 MARK FOR CORRECT EXPRESSION]

-42

[01 MARK FOR CORRECT ANSWER]

(c) $a^4 - 625$

$(a^2)^2 - (5^2)^2$

[01 MARK FOR CORRECT EXPRESSION]

$(a^2 - 5^2)(a^2 + 5^2)$

[01 MARK FOR CORRECT EXPRESSION]

$(a + 5)(a - 5) (a^2 + 25)$

[01 MARK] [01 MARK]

Answer 8.

(a) $(x^2 - 10x + 25) - (x^2 + 4x + 4) = -2$
CORRECT EXPRESSION]

[01 MARK FOR

$$x^2 - 10x + 25 - x^2 - 4x - 4 = -2$$

[01 MARK FOR CORRECT EXPRESSION]

$$-14x + 21 = -2$$

[01 MARK FOR CORRECT EXPRESSION]

$$14x = 23$$

[01 MARK FOR CORRECT EXPRESSION]

$$x = 23/14$$

[01 MARK FOR CORRECT ANSWER]

(b) $(7)^{1/2} = 2.65$

$$\frac{\{4 + (7)^{1/2}\}}{\{4 + (7)^{1/2}\}} = \frac{\{4 + (7)^{1/2}\}^2}{\{4^2 - \{(7)^{1/2}\}^2\}^{1/2}}$$

[01 MARK FOR CORRECT EXPRESSION]

$$= \{4 + (7)^{1/2}\} / 3$$

[01 MARK FOR CORRECT EXPRESSION]

$$= (4 + 2.65) / 3$$

[01 MARK FOR CORRECT EXPRESSION]

$$= 6.65 / 3$$

[01 MARK FOR CORRECT EXPRESSION]

$$= 2.22 \text{ (approx.)}$$

[01 MARK FOR CORRECT ANSWER]

SECTION A (40 Marks)**1. ANSWER THE FOLLOWING QUESTIONS:****a. GIVE ONE WORD FOR THE FOLLOWING: (05)**

- i. The powerhouse of the cell Mitochondria
- ii. Inactivated toxins secreted by the bacteria toxoids
- iii. The immunity present in the body by virtue of genetic constitutional makeup Innate immunity
- iv. A disease found in a certain area only attacking a few people Endemic.
- v. A group of related families make an Order.

b. FILL IN THE BLANKS: (05)

- i. A bacterial cell reproduces asexually by Binary fission.
- ii. The first antibiotic which was obtained from the bacteria by Selman Waksman was Streptomycin.
- iii. The body of the Rhizopus consists of a network of thread like structures called as the Hyphae.
- iv. Lysosomes are small vesicles of different shapes containing digestive enzymes for intracellular digestion.
- v. The first microscope was constructed by the Dutch scientist Antony Von Leeuwenhoek.

c. State whether the following statements are true or false. If false, then correct the statement by changing the underlined words only. (05)

NOTE: IF THE STATEMENT IS FALSE AND ITS NOT STATED EVEN THOUGH THE CORRECT STATEMENT IS WRITTEN, STILL NO MARKS SHALL BE ALLOTTED

- i. The pigment anthocyanin is found in the chromoplasts of the plant cell. **False/ carotene or xanthophyll is found in the chromoplasts of the plant cell.**
- ii. Centrioles are surrounded by radiating microtubules to form aster during cell division. **True**
- iii. Endoplasmic Reticulum is involved in the formation of acrosome of the sperm. **False/ Golgi body is involved in the formation of acrosome of the sperm.**
- iv. Bryophyta has false root like structures called rootlets. **False/ Bryophyta has false root like structure called rhizoids.**
- v. Formalin is used as an antiseptic on human skin. **False/ Formalin is used as a disinfectant and not on human skin.**

d. Choose the odd one out and give the category of the rest. (05)

NOTE: BOTH THE ODD TERM AND CATEGORY SHOULD BE CORRECT THEN ONLY ONE MARK SHALL BE ALLOTTED

- i. Sweat, tears, saliva, HCl in the stomach, Nasal secretions, Neutrophils.
Odd one: Neutrophils/ others belong to local immunity of the body.
- ii. Boric acid, carbolic acid, iodine, benzoic acid, phenol, mercurochrome.
Odd one: Phenol/ others are antiseptics.
- iii. Cholera, typhoid, tuberculosis, chicken pox, tetanus.
Odd one: Chicken pox/ others are bacterial diseases.
- iv. *Penicillium, Aspergillus, Rhizopus, Rhizobium, Agaricus.*
Odd one: Rhizobium/ others belong to fungi.
- v. Diplococci, Staphylococci, Vibrio, Spirillum, Sporangiphore, Bacillus.
Odd one: Sporangiphore/ others are different shapes of bacteria.

e. Complete the following paragraph by filling the appropriate terms/ names.(05)

Plants need 1. **Nitrogen** for synthesising proteins, but they cannot make use of the free atmospheric nitrogen. They can obtain it only in the form of 2. **Nitrates**, which they absorb from the soil through roots. These are replenished in the soil by bacteria by the process of 3. **Nitrification**. For this, some bacteria first convert nitrogenous wastes of animal and plant dead remains into 4. **Ammonia**. These are then converted into nitrites by bacteria such as 5. **Nitrosomonas**.

f. Match the following:

(05)

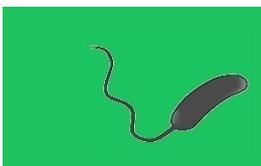
- | | |
|----------------------|----------------------------------|
| i. TAB vaccine | a. Antibiotic iii |
| ii. BCG vaccine | b. Amoebic dysentery iv |
| iii. Streptomycin | c. disinfectant v |
| iv. <i>Entamoeba</i> | d. live weakened germs ii |
| v. Bordeaux mixture | e. killed germs i |

g. Identify the following:

(05)

i. *Penicillium*

ii. *Vibrio*



iii. *Ascaris*

iv. *Taenia solium*/Tapeworm

v. *Agaricus*/Mushroom

h. NAME THE CELL ORGANELLE ASSOCIATED WITH THE FOLLOWING FUNCTION: (05)

- i. Protein factories of the cell __**Ribosomes**_____
- ii. Storage of starch in plant cell __**Leucoplast**_____

- iii. Supportive framework of the cell Endoplasmic Reticulum
 - iv. Largest cell organelle Nucleus
 - v. Initiates and regulates cell division Centrosome
-

SECTION B (40 MARKS)

ANSWER ANY 4 QUESTIONS FROM THE FOLLOWING. ALL SUBPARTS OF THE QUESTIONS ARE TO BE ATTEMPTED.

2. Answer the following questions:

a. On the basis of the given diagram answer the following questions: (05)

- i. Name the process shown in the above diagram? **Diapedesis (1)**
- ii. Name the cells that are involved in this process? **Neutrophils or WBC's (1)**
- iii. What is Phagocytosis? **The engulfing of the bacteria by the white blood cells is called phagocytosis. (1)**
- iv. Give two merits of local defence system.

The merits are:

- a. They start working instantaneously.**
- b. They are not dependent on previous exposure to infections**
- c. They are effective against a wide range of potentially infectious agents.**

NOTE : Any two merits out of the 3 given in the book (1/2 +1/2)

- v. Define actively acquired immunity.

The immunity acquired through experience during lifetime by production of antibodies by one's own body against antigens.(1)

b. Complete the following table:

(05)

Vaccine	Disease/s	The nature of vaccine
1. Salk's vaccine	A <u>_Polio myelitis_</u>	B <u>_killed germs_</u>
2. TAB	C <u>_Typhoid_</u>	D <u>_killed germs_</u>
3. Toxoids	E <u>_Diphtheria/tetanus_</u>	Extracts of toxins

Each blank is of (1) marks

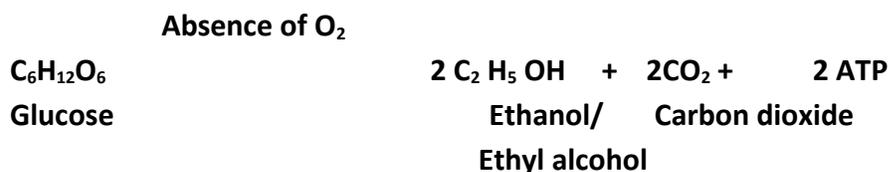
3. Answer the following questions:

a. The following diagram represents a cell organelle. Answer the following questions on the basis of the given diagram: (05)

- i. Identify the cell organelle. **Mitochondria(1/2)**
- ii. Give its function in a cell. **Site of aerobic respiration in the cell(1/2)**
- iii. What is fermentation? Give the complete chemical equation of fermentation. **(1/2 + 1)**

Fermentation is a process in which the microorganisms (yeast and bacteria) partially break down carbohydrates into simpler products (ethanol or lactic acid) in the absence of oxygen. (1/2)

The biochemical equation is as follows:



***If complete chemical equation with 2ATP molecules are shown on the product side then full 1 mark to be awarded.**

***If only the reactant side is correct and anything is missing or incorrect on the product side then only ½ (half marks) to be awarded.**

*** If the reactant side is incorrect then no marks are to be awarded.**

- iv. What are the folds present inside the matrix of this organelle known as?
Cristae (1/2)
- v. Give the full form of ATP?
Adenosine triphosphate (1)
- vi. Why is ATP called as the energy currency of the cell?
The energy produced during oxidation of glucose (complete or partial) in cellular respiration is stored in the cell as chemical energy in the form of ATP molecules which is used by the cell to perform various activities Hence, ATP is called as the energy currency of the cell. (1)

b. Differentiate between the following only on the basis of the criteria given in the bracket) (05)

NOTE: Each to be awarded 1 mark if both the answers are correct .If any one part is wrong then no marks.

i. **Antiseptic and disinfectant (type of surfaces applied upon)**

Antiseptic	Disinfectant
Can be applied on living surfaces like skin or body	Cannot be applied on living surfaces like body or skin, only on non living surfaces.

ii. **Pasteurisation and Sterilisation (temperature)**

Pasteurisation	Sterilisation
60° Celsius for 30 minutes and then chilled quickly	110° Celsius at increased pressure as in autoclave or pressure cooker.

iii. **Leucoplast and Chromoplast (materials stored)**

Leucoplast	Chromoplast
Starch/Protein/Fat	Pigments like carotene or Xanthophyll

iv. **Fungus and Plantae (mode of nutrition)**

Fungus	Plantae
Saprophytic (feeds on dead and decaying organisms)	Autotrophic (prepares one's own food through photosynthesis)

v. **Plastid and Plasmid (Type of Cell)**

Plastid	Plasmid
Eukaryotic cell e.g. Plant cells	Prokaryotic cell e.g. Bacterial cell

4. Answer the following questions:

a. Write short notes on:

Each is of (1)mark

(05)

i. Antibiotics

Antibiotics are chemical substances produced by some microorganisms, that can kill or inhibit the growth of other microorganisms. The first antibiotic was discovered by Alexander Fleming from the mould *Penicillium notatum* and was called penicillin. The term antibiotic was coined by Dr. Selman Waksman who also discovered the first bacterial antibiotic from the bacteria *Streptomyces griseus* and named it as Streptomycin. Today, many derivatives of penicillin are available in the market.

ii. Categories of diseases on the basis of occurrence.

On the basis of the extent occurrence; diseases are classified into four categories:

a. Endemic: When diseases are in a certain area only attacking a fewer number of people. E.g. Goitre in sub Himalayan regions.

b. Epidemic: When the disease breaks out and spreads from place to place affecting large population at the same time. E.g. Plague in India in 1994.

c. Pandemic: When the disease is widely distributed world-wide, e.g. AIDS, Covid -19 outbreak.

d. Sporadic: When there are scattered individual cases of a certain disease, e.g. malaria

* It is necessary to give examples.

iii. Vaccination

Vaccination is the practice of artificially introducing the germs or the germ substances in the body for developing resistance. Scientifically, this practice is called prophylaxis and the material introduced into the body is called vaccine. The vaccine can be introduced in the body by injections e.g. BCG vaccine for tuberculosis or orally e.g. polio drops. Inside the body, the

vaccine stimulates the WBCs to produce antibodies against germs for that particular disease.

iv. Cell theory

The cell theory was proposed by Matthias Schleiden and Theodor Schwann in the year 1839. Rudolf Virchow in 1858 made an addition to it. The main postulates of the cell theory are:

a. The cell is the smallest unit of all living beings

b. The cell is the structural and functional unit of all living beings.

c. All cells arise from pre-existing cells.

v. Pasteurisation

Pasteurisation is a technique of partial sterilization applied usually to milk. The milk is heated to a temperature of 60^o Celsius for a period of 30 minutes and then chilled quickly. Pasteurization kills a majority of the bacteria that are present including the disease-causing ones. It does not completely sterilize milk. Souring bacteria may still be present in it, but by keeping the milk sufficiently cool, they do not multiply.

b. Give the causative organisms of the following diseases:

(05)

- i. Amoebic dysentery *Entamoeba histolytica*
- ii. Typhoid fever *Salmonella typhi*
- iii. Tuberculosis *Mycobacterium tuberculosis*
- iv. Filariasis *Wuchereria bancrofti*
- v. Sleeping sickness *Trypanosoma gambiense*

5. Answer the following questions:

a. Study the diagram given below and answer the following questions:
(05)

- i. Label the parts K, L, M, N and O

K= chromatin network/fibres

L= Nucleolus

M= Nucleoplasm

N=Endoplasmic Reticulum/Rough Endoplasmic Reticulum

O= Ribosomes

(Each labelling is of ½ marks, total 2.5marks)

- ii. Give the function of the part labelled D **(1)**

It forms aster rays /spindle fibres during cell division

- iii. Is it a plant cell or an animal cell? Give reason in support of your answer. **It is an animal cell. Because it does not have cell wall/ no central vacuole/absence of chloroplasts/ presence of centrosome. (1/2+ 1/2) Any one reason**

- iv. Where are genes located?**On chromosomes (1/2)**

b. Answer the following questions:

(05)

- i. What were the major drawbacks of the two-kingdom system of classification?

The following were the drawbacks of the old two kingdom system of classification:

a. "Bacteria and fungi are Plants"- They have no chlorophyll and do not carry out photosynthesis.

b. Some single celled organisms such as *Euglena* cannot be exclusively called plant or animal- they have chloroplasts like plants, have cell mouth to feed like animals and possess contractile vacuole for excretion.

c. Bread mould, etc. are multicellular, but they have nothing like roots, stem and leaves and they do not bear any flowers or seeds and they have no chlorophyll.

Any two drawbacks (1/2 +1/2)

- ii. Arrange the following according to the descending order of hierarchy:

Genus, order, kingdom, family, class, phylum, species.

Kingdom> Phylum>Class > Order> Family> Genus> Species (1)

- iii. Define “species”.

Species are organisms of a particular kind whose members can interbreed among themselves to produce fertile young ones. (1)

- iv. Correct the scientific names given below as per the rules of binomial nomenclature:

PANTHERA Leo, corvus splendens.

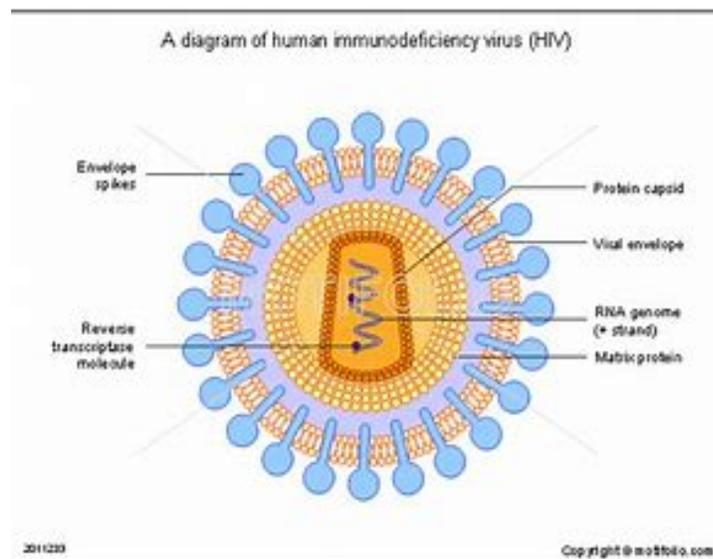
Panthera leo, Corvus splendens. (1+1)

6. Answer the following questions:

a. Answer the following:

(05)

- i. Draw a well labelled diagram of HIV



NOTE: [Diagram 1.5 , 3 labellings 1.5]

- ii. What is the full form of AIDS?

Acquired Immunodeficiency syndrome. (1)

- iii. Give any two methods of transmission of HIV.

Transmission of HIV can occur by:

- a. Sexual intercourse
- b. Contaminated blood transmission.
- c. Mother to child transmission
- d. Injection needles

Any two of the above methods. (1/2+1/2)

b. Give reasons for the following: (05)

- i. Why is mule not considered as a separate species?

It is sterile and cannot interbreed to produce offsprings.

- ii. Smaller the size, greater is the efficiency of the cell.

Faster communication in different regions of the cell as well as between the cells. Greater surface area to volume ratio allows diffusion of substances in and out of the cell.

- iii. Endospore formation in bacteria is not a method of reproduction.

It is a method to tide over/overcome unfavourable environmental conditions. It is a method of survival and not reproduction.

- iv. Improperly/ undercooked pork or beef should not be consumed.

It may contain Tapeworm in its intestines which will be passed on to the human being on consumption causing Taeniasis

- v. Housefly is considered as "Public enemy number one".

It is called as public enemy number one because:

a. Hairy body and legs pick up filth

b. Pouring out saliva.

c. It deposits its excreta while it feeds.

d. Direct transmission of germs e.g. Germs of trachoma are directly transferred when a fly which once settled on the infected eyes of a patient, next time sits on the eye of a healthy people.

Any two reasons (1/2+1/2)

***** END *****

PART I (30 Marks)

Attempt all questions from this Part

Answer 1

(1x10=10)

- a) Lok Sabha is called house of people because it is composed of representatives of people chosen by direct election on the basis of universal adult franchise.
- b) By an electoral college consisting of the elected members of both the Houses of Parliament and by the representatives of Central and State Legislature.
- c) The members of the Lok Sabha are elected through General Elections, held on the basis of universal adult suffrage.
- d)

Council of ministers	Cabinet ministers
Core ministers in the council of ministers.	Most powerful executive organ in a parliamentary government.

- e) -He/she is the *ex-officio* chairman of the Rajya Sabha and performs functions similar to those of the speaker of the Lok Sabha.
-He/she takes charge of the office of the president in case the seat falls vacant. In such situations, the vice-president discharges the function of the president till new president is elected.
- f) When no political party wins clear majority in the Lok Sabha, the president can use the discretionary powers and select a member of choice as the prime minister.
- g) It records all the proceedings of the cases handled by the judges of the court. The judgements passed are also recorded for future reference.
- h) -The elected members of the Lok Sabha and the Rajya Sabha form one part of the Electoral College which elects the President in our country.
-Both the houses of Parliament together elect the vice-president.

- i) The parliamentary system of government makes the Prime Minister the real head of the Indian government.
- j) The Prime Minister acts as a link between the president and the council of ministers.

Answer 2 (2x10=20)

- a) Primary sources include administrative records, archaeological sources, surveys, legal documents, diaries and accounts of travellers, eyewitness accounts from the period being studied.
- b) The belief that solutions to human problems can be solved with the help of science rather than religion. Humanism was the main source of inspiration for all the cultural changes that happened during Renaissance.
- c) The three important artists and their major works of the Renaissance are as follows:
 - i. Leonardo da Vinci (mention any 1 work)
 - ii. Michelangelo (")
 - iii. Raphael (")
- d) Imperialism can be defined as the process through which a country extends its power and control by acquiring weaker territories directly and gaining political, social, economic and cultural control over them.
- e) Industrial Revolution refers to the period of rapid social, economic and technological changes that took place in Britain from the latter half of the eighteenth century to the first half of the nineteenth century.
- f) The European countries wanted to search for an alternative sea route so that they could cut out the Arabs and trade directly with the East.
- g) The Mughal officers were given jagirs as payment for their military services during the rule of Akbar.
- h) - His policy of religious intolerance proved fatal for the empire. As a result, he had to face revolts from the Rajputs, Marathas, Jats and Sikhs.

-He lost the support of the Rajputs, who were not only very powerful locally, but they had also provided stability to the Mughal administrative system.

-Aurangzeb's long war in the Deccan against the Marathas depleted the resources. His aggressive policies therefore drained the Mughal treasury and alienated longtime allies of the empire.

- i) Nadir Shah, the ruler of Persia, plundered Delhi in 1739 and carried away with him immense wealth, including the Kohinoor diamond and the jewel-studded Peacock Throne of Shah Jahan.
- j) -Turans.
-Iranis.
-Afghans.
-Shaikhzadas.

PART II (50 Marks)

SECTION A (CIVICS)

*Attempt any **two** questions from this section*

Answer 3

- a) -The President of India has the power to summon, prorogue or dissolve the Parliament.

-He/she addresses the joint sessions of both the houses every year and can call for a joint session in case of a deadlock with regard to a bill. In fact, a bill cannot become a law without the President's consent.

-The President may send a bill back to the Parliament if he/she does not approve it. However, if it is passed again for the second time, he/she is obliged to sign and give approval.

-The President also nominates twelve members to the Rajya Sabha. He/she can issue ordinances, or temporary laws, when the Parliament is not in session. (4)

- b) The president is empowered to declare an emergency under these conditions.
- In case of breakdown of the administrative machinery of a state presidential rule is imposed in that state.
 - To declare national emergency in case the country's security is threatened by external aggression or by armed rebellion.
 - To declare financial emergency if financial stability of the country is threatened. (3)
- c) (any three points out of these four)
- If proved guilty of violating the terms of the Constitution, of treason or of corruption.
 - If charges made are supported by one-fourth of the members of the Parliament, which is followed by a resolution passed by two-thirds majority of that house.
 - The charges must undergo an investigation and ratification in the other house as well. Only then can a president be impeached.
 - If the President's seat falls vacant due to any of the above circumstances, the charge is immediately taken over by the vice-president.(3)

Answer 4

- a) -Union list: All subjects of national importance like defence, finance, foreign affairs and trade are included in the union list.
- State list: The matters concerning the state like law and order, public health, sanitation and drainage come within the legislation of these subjects.
 - Concurrent list: This list includes subjects on which both the state and the centre can make laws. Economic and social planning, labour and education are some of the subjects that come under this list. (4)
- b) (any three points out of these four)
- Under this system there is very close relationship between the executive and legislature.

-All the members of the executive are elected members of the majority party in the legislature.

-After the general elections, the representatives elected by the people form the Lok Sabha.

-The Council of Ministers have to be approved by a majority of the members of the Parliament. (3)

c) According to the Constitution, the powers and functions of the government are divided into three branches-the legislature, the executive and the judiciary.

-Legislature: the law-making body (Parliament)

-Executive: the body that enforces the laws made by Legislature.

-Judiciary: the body that interprets the law of the land and prevents people from violating the laws. (3)

Answer 5

a) -Disputes between the union government and one or more state governments.

-Disputes between two or more states governments.

-Violation of the Constitution by the government or an individual.

-Violation of the Fundamental Rights of an individual. (4)

b) -The Supreme Court can give advice to the President on constitutional issues, when asked by the President.(1 ½)

-The President, however, is not bound to follow its advice. The may or may not accept the advice. (1 ½)

c) The Supreme Court is the guardian of the Constitution. It safeguards the Constitution in two ways:

-It can cancel a law or an executive order if it is found to violate the Constitution.(1 ½)

-It can issue orders or directions for the enforcement of the Fundamental Rights.(1 ½)

SECTION B

*Attempt any **three** questions from this section*

Answer 6

- a) -The Mughal Empire faced the problem of stagnation in agricultural production and trade during the first half of the eighteenth century. This contributed significantly to the process of decline. (2)

-Under Aurangzeb there was acute shortage of jagirs. The nobles vied with each other for the most profitable jagirs. Leading to corruption. As a result of this crisis.The jagirdars began to extract more revenue from the peasantry because they knew that the jagir given to them could be for a short period of time. The exploitation of peasantry class contributed to the collapsed of the Mughal Empire. (2)

- b) The foreign invasions proved fatal for the already weak and politically unstable Mughal Empire.

-Nadir Shah, the ruler of Persia, plundered Delhi in 1739 and carried away with him immense wealth, including the Kohinoor diamond and the jewel-studded Peacock Throne of Shah Jahan.(1 ½)

-Ahmad Shah Abdali invaded India five times between 1748 and 1761.

(1 ½)

- c) -The absence of any definite law of succession to the Mughal throne was another major factor that caused the downfall of the empire.

-The death of a Mughal ruler was usually followed by a war of succession fought between the rival claimants to the throne. It led to the bitterness, bloodshed and frequent rebellions.

-These wars drained the resources of the empire and led to frequent political upheavals and made empire unstable. (3)

Answer 7

- a) -With the passage of time the clergy, with some exceptions, began to lead immoral lives of luxury, wealth and comfort.
- The Church also started the practice of selling Indulgences to those who had committed sins
- Discrimination was taking place between rich and poor.
- High fees were charged for conducting religious services. (4)
- b) -The teachings of the Church were rejected and its authority were challenged.
- Everything based on blind faith was questioned. People had found truthful and rational answers to their questions.
- The invention of the printing press helped to spread the ideas of Renaissance thinkers quickly, far and wide. (3)
- c) -The rulers of various states resented the interference of the Church in the affairs of their states.
- Kings like Henry VIII of England considered the powerful Church as a check on their authority.
- The rulers were willing to provide support to any movement that would curtail the rising power of the Church and the Pope. (3)

Answer 8

- a) Martin Luther. (3)
- Reformation movement.
- Wittenberg (Town in Germany).
- b) -The Church was split up permanently. (4)
- Civil war broke out in many countries between the Catholic and the Protestant.

-The Bible was translated from Latin to many regional languages.

-Protestant Movement changed the religious beliefs, practices, culture and society in Europe.

- c) -He published his work Ninety-Five Theses and nailed it on the church door at Wittenberg.

-In his theses, he emphasised on the true principles of Christianity and the role of faith.

-The invention of printing press quickly led to the spread of his writings throughout Europe. (3)

Answer9

- a) The Renaissance inspired and encouraged people to question and challenge long established ideas and institutions that had been imposed on them by the Church and their kings. They refused to blindly accept the dictates of their rulers and the Church. They demanded to know the truth based on logic and reason. The desire to seek the truth led to new and varied developments in the fields of art, architecture, sculpture, painting, literature, science and technology. (4)

- b) The Renaissance fostered a spirit of exploration and discovery which led to a steady growth of trade and commerce. A new class of rich merchants emerged in society. These merchants accumulated enormous wealth and helped their rulers to build prosperous, strong and stable states. The king's dependence on feudal lands gradually declined. (3)

- c) A large number of scholars fled from Constantinople to Italy with rare manuscripts. These scholars were welcomed, patronized and encouraged by the rulers, scholars and rich Italian merchants of Rome, Florence, Milan and Venice. Libraries were set up and universities were established to promote classical and modern learning. (3)

Answer 10

- a) The important reasons that explain why the Industrial Revolution started in England were:

-The availability of coal and iron ores in large quantities greatly helped the growth of numerous industries in England.

-With the invention of the spinning and weaving machines cloth making was perfected and brought a revolution in the textile industry.

-The British sailors discovered new lands and the discovery of these new lands served two purposes, it became a market for the purchase of raw materials and also a place to sell the finished goods.

-The invention of the railways, steamboats, steamships and roads radically improved the ease and speed with which goods could be transported to the urban centres. (4)

b) The main features of the Industrial Revolution were as follows:

-The domestic system of production was replaced by the factory system.

-Manual labour was replaced by machines.

-Small-scale production gave way to large-scale production. (3)

c) -The Industrial Revolution led to the destruction of the domestic system of production.

-Workers went to work in factories and machine-made goods were manufactured on a large scale.

-The work was divided between people according to their ability and capability. (3)

GEOGRAPHY

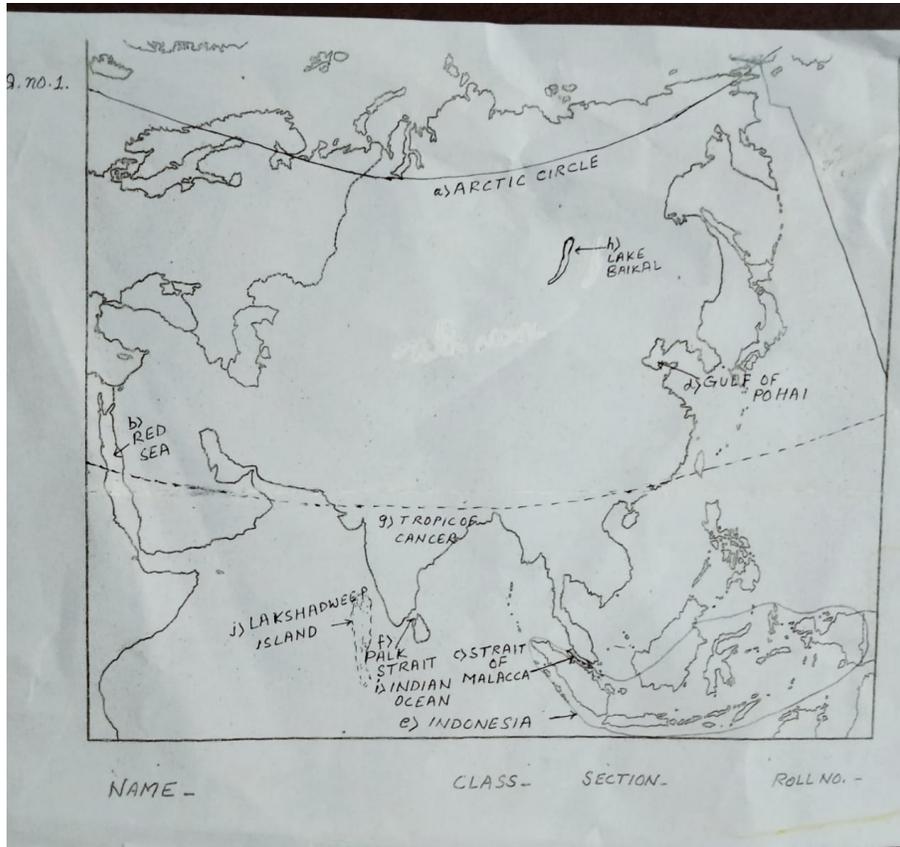
SECTION-A (30MARKS)

Question-1

On the given map, Mark in and Name the following: (10)

- a. The important line of latitude beyond which it is permanently frozen condition. **Arctic Circle**
- b. The water body which is the part of the Great Rift Valley. **Red Sea**
- c. The longest strait of the world. **Strait of Malacca**
- d. The new mouth of River Hwang Ho. **Gulf of Po Hai**
- e. The country which is the largest archipelago in the world. **Indonesia**
- f. The narrow water body that separates Sri Lanka from India. **Palk Strait**
- g. The northernmost extremity of the sun's apparent movement. **Tropic of Cancer**
- h. The world's deepest freshwater lake. **Lake Baikal**
- i. The ocean named after a country. **Indian Ocean**

- j. An island group of coral origin. **Lakshadweep Island**



(1 mark each for both marking and naming. If only marking is done and no naming or if only naming is done but no marking then no marks.)

Question-2

Give geographical term for each of the following: (10)

- The point on the Earth's surface where the effects of earthquake are felt the most. **Epicentre**
- Low pressure areas over warm ocean waters of temperate and tropical regions resulting in destruction. **Cyclone.**
- An outbreak of contagious disease that spreads rapidly and widely. **Epidemic**
- The scale on which the intensity of the earthquake is measured. **Richter scale**
- The disaster caused due to insufficient rainfall for long period of time. **Drought**
- The people who leave their country to settle elsewhere. **Emigrants**

- g. The movement of people across the continents. **Intra-continental migration**
- h. The measure of the number of people living in a unit area of the Earth. **Population Density**
- i. Scientific study of human population. **Demography**
- j. The term used when there are not enough people to make full use of the resources and technology of the place they live in. **Underpopulation**

(If the spelling is incorrect no marks to be given)

(1 mark each)

Question-3

Match the following statements correctly:

(10)

a. The migrants willing to happily take up unskilled jobs-	Cheap labours
b. The maximum number of a species an environment can support -	Carrying capacity
c. The narrow stretch of water that separates Asia and North America.	Bering Strait
d. The natural activity that triggers landslides and avalanches-	Earthquake
e. Better employment and job security is a-	Pull factor
f. Cloudbursts create sudden-	Floods
g. Disasters that are caused by some naturally occurring phenomena-	Natural disasters
h. Earthquakes are caused by -	Plate Tectonics Movements
i. A sudden flood caused due to thunder showers or breaches-	Flash Flood
j. It is measured as the number of deaths per 1,000 population in a given year	Death rate

(The answer from column B must be written along with the question from column A. If only numbers are mentioned as answers then no marks) *(1 mark each)*

SECTION-B (50 MARKS)

Question-4

Study the picture given below and answer the questions that follow:

(10)



- a. What does the above picture depict? Name the state of India most affected by it. (2)

The natural disaster-flood. (1)

Assam, Bihar (any one) (1)

b. What are the hazardous effects of this? (2)

***It causes damage to cultivating area, grazing lands, food grains and fodder crops.**

***The nutrient rich top soil is washed away.**

***It causes health problem like malaria, typhoid, cholera, dysentery etc.**

***Problem of drinking water. (any two) (1 for each)**

c. What preventive measures can be taken to mitigate the effects of it? (3)

***The construction of dams,tanks and ponds as these absorb large amount of flood waters.**

***Indiscriminate deforestation should be prevented**

***Proper embankments should be constructed.**

***The prior warning should be given through mass media.(any three) (1 for each)**

d. "This phenomenon is an annual feature in Assam". Give reasons. (3)

***Assam is prone to flood due to heavy rain and melting of snow during summer.**

***Landslides-due to earthquake landslides are caused , debris of which causes the river bed to rise.**

***During monsoon River Brahmaputra and its tributaries become braided due to bank erosion.**

***Releasing of water from dams (any three) (1 for each)**

Question-5

a. What is the difference between a hazard and a disaster? (2)

***Hazards are the natural phenomena that may lead to a disaster.**

***Disasters are the incidents that cause significant damage to life and property.**

(If both the terms are explained and difference is clear then only 2 marks to be given. If only one term is explained no marks to be given)

b. "Bhopal Gas Tragedy" was a man-made disaster. Give reasons. (2)

***It was caused due to the human negligence at the Carbide Plant.**

***Poor maintenance**

***lack of safety checks.(any two) (1 for each)**

c. What are the aims of disaster management? (3)

***To reduce or avoid ,the potential losses from hazards**

***To assure prompt and appropriate assistance to victims of disaster and**

***To achieve rapid and effective recovery (1 for each)**

d. Write three basic safety measures during an earthquakes. (3)

***If one is inside he or she should take shelter under table, bed or staircases.**

***If one is outdoor during a tremor he or she should be away from trees, buildings, electricity poles etc.**

***Prior awareness of safety measures should be spread among the people.**

***Earthquake resistant buildings should be constructed**

***One should stay away from mirror, glass windows and other things that are prone to breaking.**

***Do not use the elevators, instead take the staircase or ramp.**

***Early warning of aftershocks after earthquakes can help people to evacuate their homes and other buildings.**

(any three) (1 for each)

Question-6

a. The Northern Plains of India are densely populated. Give reasons. (2)

***Northern plains are flat cultivable lands and water is available in plenty for both agricultural and domestic purposes.**

***Due to flatness easy to construct roads and railways. (1 for each)**

- b. Define the following terms: (2)

Sex Ratio, Natural Growth Rate

***Sex ratio-It is used to describe the number of females per 1000 males.**

***Natural growth rate- The difference between the birth rate and the death rate of a country.**

(1 for each)

- c. Briefly describe the three main age groups that comprise the age composition. (3)

***0-14 years: This group consists of children. In India, 34% of the total population comprises this group. (1)**

***15-64 years: This consists of working population. India carries 61% of the total population. (1)**

***65 years and above: This group consists of old people. In India, this group comprises about 5% of the total population. (1)**

(½ marks for mentioning the age group and ½ for explanation)

- d. How is the level of literacy related to the economic and social development of a country?

Explain with examples. (3)

***Literacy level are generally high in in developed countries and low in underdeveloped countries.**

***Because of High literacy level people in developed countries will have high standard of living.**

***High level of literate People will have new, creative ideas which will help in the development of the country. (any two points) (1 mark for each)**

***Russia having high literacy rate is one of the developed countries whereas countries like Sudan, Afghanistan, Niger having low literacy rate and are underdeveloped countries.**

(½ mark for each example)

Question-7

- a. Define the following terms: (2)

Optimum Population, Population Pyramid

***Optimum population-** This is when a country is making the best use of its resources so its population can enjoy a high quality of life. (1)

***Population pyramid-** A bar chart that shows the distribution of a population by age and sex.

(1)

b. Fertility rate causes under population. Give reasons. (2)

***Due to factors such as literacy, economic development, making the idea of having big families impractical, changed attitude towards fewer children and an improvement in the social role of woman. (any 2) (1 mark for each)**

c. Discuss the three main factors affecting the distribution of population. (3)

***Geographical /physical factors-climate, soil, water and natural vegetation**

***Economic and social factors-mineral resources, industries, transport facilities and government policies**

***Social factors- Urbanisation and government policies (1 mark for each)**

d. What do you understand by overpopulation? Explain two impacts of it. (3)

***This means that a region has too many people and not enough resources to maintain a reasonable standard of living. (1)**

***Depletion of natural resources *Environmental hazards**

***Unemployment and poverty *Health and sanitation**

***Imbalance in trade (any two) (1 mark for each)**

Question-8

a. What is return migration? State any one important cause of it. (2)

***It is a type of voluntary migration when migrants return to their original place. (1)**

***When they retire, willingness to spend rest of their lives with old friends and families.(1)**

b. Differentiate between internal migration and Intercontinental migration. (2)

***Internal-Movement of people from one place to the other within the same region, continent or country.**

***Intercontinental-The movement of people across continent, ie. from one continent to another.**

(If both the terms are explained and difference is clear then only 2 marks to be given. If only one term is explained no marks to be given)

c. Why is push factor a forceful factor? Name any two push factors. (3)

***Because the people risk something if they stay. (1)**

Push factors include the following:

>Conflict or civil war

>Lack of job opportunities

>Lack of economic opportunities

>Fear of torture and mistreatment

>Racial or cultural discrimination

>Not being able to practice religion/religious intolerance

>Drought, famine or other natural disasters

>Shortage of food

>Poor medical care

>Loss of health

>Political intolerance and persecution of people who question

(any two)

(1 mark for each)

d. What is rural-urban migration? State its main impacts. (3)

***It involves the movement of people from rural areas to urban areas of the same country.(1)**

Two impacts-

***Urban growth-expansion of towns and cities. (1)**

***Urbanisation -an increasing population, overpopulation, emergence of slums, development of satellite towns and emergence of Mega cities. (1)**

COMPUTER

SECTION – A : 32 Marks

Ans-1(a)

<u>Class</u>	<u>Object</u>
(i) A class is a named unit of code for representing real-world entities in a program.	(i) Objects are unique entities.
(ii) A class contains objects of similar type.	(ii) Objects contain Characteristics / Attributes and Behavior.
1 mark for each point.	

(b) An OS is a software that acts as an interface between the user and the hardware, controls & coordinates the working of the computer system as a whole [1 mark] and provides an environment in which users can execute programs conveniently & efficiently. [1 mark]

(c) int : 32-bits ; long : 64-bits. [1 mark for each]

Ans-2(a) Machine Language is the First Generation programming language and involves the use of binary codes. [1 mark]
It has a good working speed but is quite difficult to learn & use. [1 mark]

The Third and Fourth Generation programming languages are referred to as High Level Languages. HLLs involve the use of English-like words for programming. [1 mark]
They are easier to learn & use as compared to Low Level Languages but are comparatively slower. [1 mark]

(b) System Software are software programs which acts as an interface between the user and the hardware [1 mark] and ensures that the computer system works properly & efficiently. [1 mark]

(c) byte, short, int and long.

[1 mark for two correct data-types; NO ½ mark]

Ans-3(a)

<u>CUI</u>	<u>GUI</u>
(i) Users have to type-in the exact commands.	(i) Users can perform the required tasks by selecting commands with a point-and-click device.
(ii) Difficult to use.	(ii) Easier to use.
(iii) Requires lesser memory.	(iii) Requires more memory.
(iv) Commands are given through the keyboard.	(iv) Commands can be given by using both the mouse and the keyboard.

1 mark for each difference; NO ½ mark.

(b) The wrapping-up of data and the functions / methods that operate on that data into a single unit is known as Encapsulation. [2]

(c) Java is said to be platform independent because Java programs are not compiled into platform-specific machine codes [1 mark]; rather, they are translated into 'bytecodes' that can be executed on any system / platform for which a JVM has been implemented. [1 mark]

Ans-4(a) The act of representing only the essential features and ignoring the other background details is known as Abstraction. [2 marks]

For example, to drive a car, the driver only needs to know how to use the steering, gear, accelerator, brakes etc; s/he does not need to know about the internal working of engine, how the brakes work etc. [2 marks]

(b) A Distributed Operating System is an OS that *runs on multiple computers* linked by a communication network where *each node holds a specific software subset of the aggregate OS*. [1 mark for each]

An example of a DOS is Amoeba.

(c) Developer of Java : James Gosling. 1 mark for each.
The initial / original name of Java was "Oak".


```

Ans-6> import java.io.* ;
class School
{
public static void main(String args[ ]) throws IOException
{
BufferedReader input = new BufferedReader( new InputStreamReader ( System.in ) ) ;
double l, b, a, p ;
System.out.println("Enter the length & breadth : " ) ;
l = Double.parseDouble(input.readLine( ) ) ;
b = Double.parseDouble(input.readLine( ) ) ;
a = l * b ;          Should use proper symbol for multiplication ;
p = 2*(l + b) ;     Parenthesis Necessary.
System.out.println("Area = " + a ) ;
System.out.println("Perimeter = " + p ) ;
}}

```

```

Ans-7> import java.io.* ;
class School
{
public static void main(String args[ ]) throws IOException
{
BufferedReader input = new BufferedReader( new InputStreamReader ( System.in ) ) ;
double p, r, i ;
int t ;
System.out.println("Enter the Principal, Time and Rate : " ) ;
p = Double.parseDouble(input.readLine( ) ) ;
t = Integer.parseInt(input.readLine( ) ) ;
r = Double.parseDouble(input.readLine( ) ) ;
i = p * t * r / 100 ;
System.out.println("Interest = " + i ) ;
System.out.println("Final Amount = " + ( p + i ) ) ;
}}          Parenthesis Necessary.

```

```

Ans-8> import java.io.* ;
class School
{
public static void main(String args[ ]) throws IOException
{
BufferedReader input = new BufferedReader( new InputStreamReader ( System.in ) ) ;
double d, r, a, c ;      .....Data-type should be "double"
System.out.println("Enter the diameter : ") ;
d = Double.parseDouble(input.readLine( )) ;
r = d / 2 ;
a = 3.14 * r * r ;
c = 2 * 3.14 * r ;
System.out.println("Area = " + a ) ;
System.out.println("Circumference = " + c ) ;
}}

```

```

Ans-9> import java.io.* ;
class School
{
public static void main(String args[ ]) throws IOException
{
BufferedReader input = new BufferedReader( new InputStreamReader ( System.in ) ) ;
int A, r, p ;
System.out.println("Enter the amount in Paise : ") ;
A = Integer.parseInt(input.readLine( )) ;
r = A / 100 ;      The '/' and '%' operators
p = A % 100 ;      should be used with appropriate variables.
System.out.println("Rs. = " + r ) ;
System.out.println("Paise = " + p ) ;
}}

```

```
Ans-10> import java.io.* ;
class Emp
{
public static void main(String args[ ]) throws IOException
{
BufferedReader input = new BufferedReader( new InputStreamReader ( System.in ) ) ;
double b, da, hra, pf, gp, np ;
System.out.println("Enter the basic-pay : " ) ;
b = Double.parseDouble(input.readLine( ) ) ;
da = 40 / 100.0 * b ;
hra = 15 / 100.0 * b ;
pf = 10 / 100.0 * b ;           Formula should be correct.
gp = b + da + hra ;
np = gp - pf ;
System.out.println("Dearness Allowance : " + da) ;
System.out.println("House Rent Allowance : " + hra) ;
System.out.println("Provident Fund : " + pf) ;
System.out.println("Gross Pay : " + gp) ;
System.out.println("Net Pay : " + np) ;
}}
```

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