



**Yuvashakti Model School**  
— इतिहास और इतिहास —

**Class-XI**

**Winter Holiday  
Homework**

## ENGLISH

TIME 3 HRS

MM: 70

General Instructions:

1. The paper is divided into three Sections A, B and C. All the sections are compulsory.
2. Separate instructions are given with each section and question, wherever necessary. Read these instructions very carefully and follow them.
3. Do not exceed the prescribed word limit while answering the questions.

### Section A (Reading Skill)

Q1. Read the passage given below.

10

1. Do you have a hobby? Is there anything that you are passionate about? Something creative that you really like doing, or are deeply involved with? Something that grips you, makes you forget all else — even make you forget to eat or sleep? No, I am not talking about your job or your daily chores. By developing a parallel line, other than that of your job, and following it like crazy, you energise your life. It will keep you going even when all other activities have stopped. It did not make much sense to me until I ran into a retired officer turned passionate writer.

2. Let's call him Mr.X. What was amazing was his appearance. He looked 10 years younger than his self-proclaimed 75 - dark grey hair, tall and robust. Well-preserved, as some would say. "I don't want to take much of your time, but just wanted to show you my work," he said. In his bag, he was carrying dozens of books that he had written after retirement. Short stories and novels in his mother tongue and in English, for children and adults.

3. Mr.X retired after putting in 30 years of service. But he did not retire from life. No way. "In fact, I lead a much busier life now - writing." "So writing is your hobby?" I asked him. "No, it is my only interest. While I was working, I did not have enough time to write. But now I work

10 - 12 hours a day writing, writing, writing." "Why? Is that the way you support yourself?" "No, my writings don't pay me financially, but they fulfil me otherwise," he said. Mr. X lives on his savings, but he relies on his passion to take care of his mental and physical wellbeing.

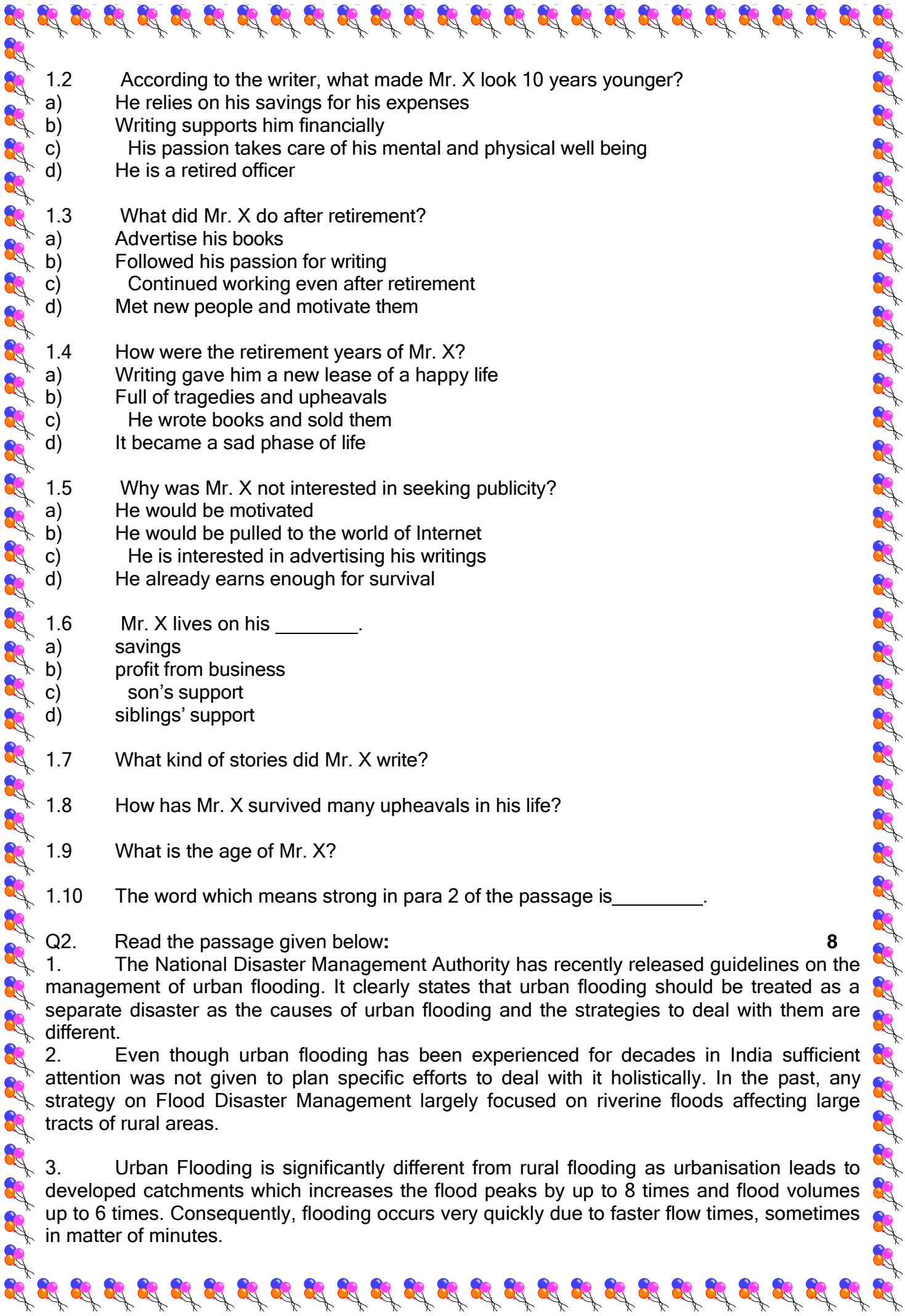
4. In fact, such is the energy and sense of satisfaction and contentment that he draws from his writing that he has managed to survive many upheavals in life. Thanks to his passion, retirement never became a sad phase of life for him; instead, it gave him a new lease of life, an opportunity to do that which he missed out on or had no time for earlier. And his level of commitment was impressive. He does not want publicity nor is he interested in advertising himself. "It will take me away from my writing and pull me into the world of the Internet. I would rather follow my passion," he says. Gathering his books, he was soon ready to leave - eager to go back to his passion.

5. He left me with the motivation to seek one, too. Thank you, Mr. X.

On the basis of your understanding the passage, answer the questions given below:

1.1 According to the passage, what is a hobby?

- a) Something you are passionate about
- b) Something that energises your life
- c) Something you are deeply involved in
- d) All of these



1.2 According to the writer, what made Mr. X look 10 years younger?

- a) He relies on his savings for his expenses
- b) Writing supports him financially
- c) His passion takes care of his mental and physical well being
- d) He is a retired officer

1.3 What did Mr. X do after retirement?

- a) Advertise his books
- b) Followed his passion for writing
- c) Continued working even after retirement
- d) Met new people and motivate them

1.4 How were the retirement years of Mr. X?

- a) Writing gave him a new lease of a happy life
- b) Full of tragedies and upheavals
- c) He wrote books and sold them
- d) It became a sad phase of life

1.5 Why was Mr. X not interested in seeking publicity?

- a) He would be motivated
- b) He would be pulled to the world of Internet
- c) He is interested in advertising his writings
- d) He already earns enough for survival

1.6 Mr. X lives on his \_\_\_\_\_.

- a) savings
- b) profit from business
- c) son's support
- d) siblings' support

1.7 What kind of stories did Mr. X write?

1.8 How has Mr. X survived many upheavals in his life?

1.9 What is the age of Mr. X?

1.10 The word which means strong in para 2 of the passage is \_\_\_\_\_.

Q2. Read the passage given below:

8

1. The National Disaster Management Authority has recently released guidelines on the management of urban flooding. It clearly states that urban flooding should be treated as a separate disaster as the causes of urban flooding and the strategies to deal with them are different.

2. Even though urban flooding has been experienced for decades in India sufficient attention was not given to plan specific efforts to deal with it holistically. In the past, any strategy on Flood Disaster Management largely focused on riverine floods affecting large tracts of rural areas.

3. Urban Flooding is significantly different from rural flooding as urbanisation leads to developed catchments which increases the flood peaks by up to 8 times and flood volumes up to 6 times. Consequently, flooding occurs very quickly due to faster flow times, sometimes in matter of minutes.

4. Urban areas are centres of economic activities with vital infrastructure which needs to be protected 24 x 7. In most of the cities, damage to vital infrastructure has a bearing not only locally but could even have global implications.

5. Urban areas are also densely populated and people living in vulnerable areas, both rich and poor, suffer due to flooding. It has sometimes resulted in loss of life, damage to property and disruptions in transport and power bringing life to a grinding halt causing untold misery and hardships. Even the secondary effects of subsequent epidemics and exposure to infection often takes further toll in terms of loss of livelihood, human suffering, and, in extreme cases, loss of life. Therefore, management of urban flooding has to be accorded top priority.

6. There has been an increasing trend of urban flood disasters in India over the past several years. Almost every major city in India has been severely affected. Mumbai floods of July 2005 turned out to be an eye opener.

7. The deluge of rains in the catchment areas of the Yamuna during August and September in 2010 has inundated many villages and towns of Haryana, besides threatening the low-lying areas of the Delhi, the national capital. The fury of floods did not spare many areas of Uttar Pradesh and Uttarakhand.

8. Storm Water Drainage systems in the past were designed for a rainfall intensity of 12-20 mm/h. However, we have been experiencing rainfall of higher intensities in most of our cities every year, which overwhelm the SWD system. Moreover, the systems very often do not work to the designed capacities because of encroachments, dumping of solid waste and poor operations and maintenance.

9. Improper disposal of solid waste, including domestic, commercial and industrial waste and dumping of construction debris into the drains also contributes significantly to reducing their capacities. Everybody is responsible for this.

10. Encroachments are a major problem in many cities and towns all over the country. With large scale encroachments on the natural drains and in the floodplains, the capacity of the natural drain has decreased, resulting in flooding even with lower intensities of rainfall.

On the basis of your understanding the passage, answer the questions given below:

2.1 Urban flooding is to be treated as a separate disaster because.....

- (a) the problems of urban areas are unique
- (b) urban areas get flooded easily
- (c) the causes of urban flooding are different
- (d) urban and riverine flooding are similar

2.2 Urban flooding occurs very quickly as \_\_\_\_\_

- (a) The drainage is usually blocked
- (b) Storm water drainage is poor
- (c) Encroachments obstruct flow of water
- (d) Developed catchments increase faster flow times

2.3 Urban areas need a round the clock vigil because...

- (a) They are centres of economic activities with vital infrastructure
- (b) They are the hubs of commerce and industry
- (c) They contain educational institutions and hospitals
- (d) They provide rail/road links to the rural areas

2.4 Encroachment on natural drains intensify flooding because.....

- (a) These divert the flow of water
- (b) These cause whirls and speed up flow
- (c) These decrease the capacity of drain

(d) These obstruct the smooth flow of water

2.5 The word 'overwhelm' in para 7 means...

- (a) Stunned
- (b) Flooded
- (c) Overpowered
- (d) Defeated

2.6 Why doesn't SWD system work to the designed capacity?

2.7 How does flood in urban areas affect life?

2.8 Give the word similar in meaning to this word from the passage: Basic system and service. (para 4)

Q3. Read the passage given below:

1. Keeping cities clean is essential for keeping their residents healthy. Our health depends not just on personal hygiene and nutrition, but critically also on how clean we keep our cities and their surroundings. The spread of dengue and chikungunya are intimately linked to the deteriorating state of public health conditions in our cities. The good news is that waste management to keep cities clean is now getting attention through the Swachh Bharat Mission.

2. However, much of the attention begins and stops with the brooms and the dustbins, extending at most to the collection and transportation of the mixed waste to some distant or not so distant place, preferably out of sight. The challenge of processing and treating the different streams of solid waste, and safe disposal of the residuals in scientific landfills, has received much less attention in municipal solid waste management than is expected from a health point of view.

3. One of the problems is that instead of focusing on waste management for health, we have got side-tracked into "waste for energy". If only we were to begin by not mixing the biodegradable component of solid waste (close to 60 per cent of the total) in our cities with the dry waste, and instead use this stream of waste for composting and producing a gas called methane.

4. City compost from biodegradable waste provides an alternative to farmyard manure (like cow-dung). It provides an opportunity to simultaneously clean up our cities and help improve agricultural productivity and quality of the soil. Organic manure or compost plays a very important role as a supplement to chemical fertilisers in enriching the nutrient-deficient soils. City compost can be the new player in the field. Benefits of compost on the farm are well-known. The water holding capacity of the soil which uses compost helps with drought-proofing, and the requirement of less water per crop is a welcome feature for a water-stressed future. By making the soil porous, use of compost also makes roots stronger and resistant to pests and decay. Farmers using compost, therefore, need less quantity of pesticides.

5. There is also evidence to suggest that horticulture crops grown with compost have better flavour, size, colour and shelf-life. City compost has the additional advantage of being weed-free unlike farmyard manure which brings with it the seeds of undigested grasses and requires a substantial additional labour cost for weeding as the crops grow. City compost is also rich in organic carbon, and our soils are short in this. Farmers clearly recognize the value of city compost. If city waste was composted before making it available to the farmers for applying to the soil, cities would be cleaned up and the fields around them would be much more productive. Quite apart from cleaning up the cities of biodegradable waste, this would be a major and sustainable contribution to improving the health of our soil without further damage by excessive chemical inputs. What a marvellous change from waste to health!

6. The good news is that some states are regularly laying plastic roads. Plastic roads will not only withstand future monsoon damage but will also solve a city's problem of disposing of non-recyclable plastic. It is clear that if the mountains of waste from our cities were to be recycled into road construction material, it would tackle the problem of managing waste while freeing up scarce land.

3.1. On the basis of your understanding of the above passage, make notes on it headings and sub-headings. Use recognisable abbreviations wherever necessary (minimum four) and a format you consider suitable. Also supply an appropriate title. 5

3.2. Write a summary of the passage in about 80 words. 3

### Section B (Writing Skill and Grammar)

Q4. You are Sushmita / Shrivardhan living at 37, Friends colony, New Delhi. You wish to sell your house as you are migrating to Australia. Draft an advertisement to be published in The Times of India. 3

OR

You are the Principal of Star International School, New Delhi. You require a cricket coach for your institute. Write an advertisement to be published in a national daily.

Q5. You are Maanya / Pranav, President of Resident's Welfare Association No.73, Ashok Vihar. Design a poster, to be pasted in your locality telling people about importance of Earth day. 3

OR

You are Snigdha / Ayush, Secretary of 'UDAN' NGO, New Delhi. Prepare a poster in not more than 50 words to be displayed at key places in your city appealing people to show kindness towards animals.

Q6. Students of today's era are addicted to mobile phones and we cannot stop them from doing so. As Shubhendra / Vaishali, Head boy / Head girl of school, write a speech to be delivered in the morning assembly about the intelligent use of internet which can prove as a blessing. 5

OR

You are Ashim / Ashima of XI class. Write a debate either in favour or against the topic 'Academic Excellence is the only requirement for a successful Career'.

Q7. Fill in the blank with appropriate form of verb. 3  
The wedding procession. (a) ..... (already start) when we (b)..... (reached) Mohan's home While we (c) ..... (be) on the way, we. (d)..... (decide) not to dance at all. But the scene (e) ..... (prove) so attractive that we (f)..... (draw) into it.

Q8. Rearrange the following to form meaningful sentences. 4  
(a) widely/ in /English/ India/ one/ languages/ of the/ spoken/ is /most  
(b) this poem/ today/ be /learnt/ me /will /by  
(c) of/ expression/ I/ freedom/ in /believe  
(d) me/ lot/ Indian/ appeals/ a/ architecture

Section C (Literature)

Q9. Read the extract given below and answer the questions that follow:

3

When did my childhood go?  
Was it the day I ceased to be eleven  
Was it the time I realized that hell and heaven,  
Could not be found in geography  
And therefore could not be,  
Was that the day!

1. When does poet realise that his childhood has gone?

- a) When he ceased to be eleven
- b) when he used his mind
- c) When he presented his thoughts
- d) When he became old

2. What does stanza -1 reflect?

- a) Individuality
- b) Rationality
- c) Seclusion
- d) Personality

3. Name the poet and the poem.

Q10. Read the passage and answer the questions that follow:

3

From the gently rolling hills of Ravu, the short cut took us across vast open plains with nothing in them except a few gazelles that would look up from nibbling the arid pastures and frown before bounding away into the void. Further on, where the plains became more stony than grassy, a great herd of wild ass came into view. Tsetan told us we were approaching them long before they appeared. "Kyang," he said, pointing towards a far-off pall of dust. When we drew near, I could see the herd galloping en masse, wheeling and turning in tight formation as if they were practising manoeuvres on some predetermined course. Plumes of dust billowed into the crisp, clean air.

1. Where did they reach after they left Ravu?

2. Find the synonym of dry from the passage.

- a) Nibbling
- b) Galloping
- c) Arid
- d) plumes

3. What is kyang?

- a) pall of dust
- b) manoeuvres
- c) plumes
- d) clean air

He remained like this so long, and his thoughts were so filled with Why was the doctor confused?

Q11. Read the extract given below and answer the questions that follow:

His thoughts were heavy, muddled. The episode he had witnessed at Cardiff station still obsessed him morbidly. He thought of Bramwell, foolishly devoted to a woman who deceived him sordidly, of Edward Page, bound to the shrewish Blodwen, of Denny, living unhappily, apart from his wife. His reason told him that all these marriages were dismal failures. It was a conclusion which, in his present state, made him wince. He wished to consider marriage as an idyllic state; yes, he could not otherwise consider it with the image of Christine before him. Her eyes, shining towards him, admitted no other conclusion. It was the conflict between his level, doubting mind and his overflowing heart which left him resentful and confused. He let his chin sink upon his chest, stretched out his legs, stared broodingly into the fire. He remained like this so long and his thoughts were so filled with Christine that he started when the old woman opposite suddenly addressed him. Her meditation had pursued a different course.

1. The doctor reasoned that the marriages are .....

- a. Idyllic
- b. Perfect
- c. Failures
- d. Sensitive

2. Who was the old woman sitting opposite him?

- a. The midwife
- b. Mother of Susan
- c. Susan
- d. Christine

Q12. Answer the following questions in brief.(Any two)

2x3=6

- 1. What is the present situation of the father and what does he want now? ( Father to Son)
- 2. Describe in brief the contents of the tomb. (Discovering Tut)
- 3. What indication do you get that tell that Professor Gaitonde was visiting a British Indian Bombay city? (The Adventure)

Q13. Answer the following questions in brief. (Any one)

3

- 1. What efforts did Andrew make to revive the new born baby? (Birth)
- 2. How do you know that Mourad had a special compassion for animals? (The Summer of the Beautiful White Horse)

Q14. Answer the following question in about 120-150 words.

4

Write a character sketch of the author's grandmother using the following words: affectionate, caring, kind, religious, a strong woman



What did you learn about Tibetan Mastiff through the description given by the author?

Q15. Answer the following questions in about 120-150 words.

4

Draw a contrast between Mrs. Fitzgerald and Mrs. Pearson.

OR

What is the story of 'The Tale of Melon City'?

## MATHS

### General Instructions:

- 1) There are 5 sections in this paper, section A,B,C,D and E.
- 2) Section- A comprises 17 questions of 1 mark each including two Assertion and Reason based questions, Section-B comprises 5 questions of 2 marks each.
- 3) Section-C comprises 5 questions of 3 marks each, Section-D comprises 4 questions of 5 marks each.
- 4) Section -E comprises two case study based questions of 4 marks each.
- 5) All questions are compulsory and use of calculator is not permitted.

### SECTION-A

1. The value of  $\sin 64\pi$  is:  
(a) 1            (b) 2            (c) 0            (d) -1
2. The value of  $(1+i)^4 + (1-i)^4$  is :  
(a) 8            (b) 4            (-4)            (d) -8
3. The value of  $i^{1000}$  is:  
(a) 1            (b) -1            (c) i            (d) -i
4. The length of a rectangle is three times the breadth .if the minimum perimeter of the rectangle is 160 cm, then  
(a) Breadth  $> 20$  cm            (b) length  $< 20$  cm  
(c) breadth  $\geq 20$  cm  
(d) length  $\leq 20$  cm
5. If  ${}^nC_9 = {}^nC_8$  then the value of  ${}^nC_{17}$  is :  
(a) 2            (b) 1            (c) 5            (d) 0
6. The total number of terms in the expansion of  $(a^2 + 2ab + b^2)^{101}$  is:  
(a) 102            (b) 203            (c) 204            (d) none of these
7. The coefficient of  $x^{50}$  in  $(1+x)^{100}$  is:  
(a)  ${}^{100}C_{50} x^{50}$             (b)  ${}^{100}C_{50}$             (c)  $x^{50}$             (d)  ${}^nC_{50}$
8. The sixth term from the beginning of the G.P. 8,4,2,..... Is  
(a)  $\frac{1}{2}$             (b)  $\frac{1}{4}$             (c)  $\frac{1}{16}$             (d)  $-\frac{1}{4}$
9. The slope of the line perpendicular to the join of points A(3,6) and B(9,-7) is :  
(a)  $-\frac{13}{6}$             (b)  $\frac{6}{13}$             (c)  $\frac{13}{6}$             (d) none of these
10. The angle between x-axis and the line joining (3,-1) and (4,-2) is:  
(a)  $30^\circ$             (b)  $60^\circ$             (c)  $45^\circ$             (d) none of these.
11. The centre of the circle  $x^2 + y^2 + 6x + 2y = 0$  is:

12. The three coordinate planes divide the space into number of parts equal to:

- (a) 6            (b) 4            (c) 8            (d) 2

13.  $\lim_{x \rightarrow 0} \left( \frac{\sin ax}{\sin bx} \right)$

- (a) b/a        (b) a/b        (c) ab        (d) a+b

14. In a distribution ,if variance is 16, then standard deviation is :

- (a) -4        (b)  $\pm 4$         (c) 4        (d) none of these

15. If  $P(A \cap B) = 0.4$  then  $P(\underline{A} \cup \underline{B})$  is :

- (a) 0.8        (b) 0.04        (c) 0.08        (d) 0.6

(ASSERTION AND REASON BASED QUESTIONS)

In the following questions ,a statement of assertion (A)is followed by a

stateme

nt of reason(R) . Choose the correct option of the following:

- (a) both A and R are true and R is the correct explanation of A.  
(b) both A and R are true and R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

16. Assertion (A) : The point (-1,7,11) lies in octant II.

Reason (R) : in octant II, x-coordinate is negative and both y and z coordinates are positive.

17. Assertion (A) : if  $f(x) = 2x^4+x$ , then  $f'(x)=8x^3+1$ .

Reason ( R) :  $\frac{d}{dx} \sin x = \cos x$ .

SECTION-B

18. Prove that :  $\frac{\sin(x+y)}{\sin(x-y)} = \frac{\tan x + \tan y}{\tan x - \tan y}$

OR

$$\tan 3x \cdot \tan 2x \cdot \tan x = \tan 3x - \tan 2x - \tan x.$$

19. For any sets A and B show that:

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

20. Expand  $(x^2 + \frac{3}{x})^4$  using Binomial Theorem.

21. Find the centre and radius of the circle  $x^2 + y^2 - 8x + 10y - 12 = 0$ .

OR

If a parabolic reflector is 20cm diameter and 5 cm deep, find the focus.

22. Show that the points P(-2,3,5),Q(1,2,3)and R(7,0,-1) are collinear.

SECTION-C

23. A manufacturer has 600 litres of a 12% solutions of acid. how many litres of a 30% acid solution must be added to it so that acid content in the resulting mixture will be

24. If  $a, b, c, d$  are in G.P, prove that  $(a^n+b^n), (b^n+c^n), (c^n+d^n)$  are in G.P.

OR

The sum of two numbers is 6 times their geometric mean, show that the numbers are in the ratio  $(3+2\sqrt{2}) : (3-2\sqrt{2})$ .

25. A line perpendicular to the line segment joining the points  $(1,0)$  and  $(2,3)$  divides it in the ratio  $1:n$ . Find the equation of the line.

OR

The line through the points  $(h,3)$  and  $(4,1)$  intersects the line  $7x-9y-19=0$  at right angle. Find the value of  $h$ .

26. Find the domain and range of the function:

$$f(x) = \frac{1}{\sqrt{9-x^2}}$$

27. If 4-digit numbers greater than 5000 are randomly formed from the digits 0, 1, 3, 5, and 7, what is the probability of forming a number divisible by 5 when, (i) the digits are repeated. (ii) the repetition of digits is not allowed.

SECTION-D

28. Find the number of words with or without meaning which can be made using all the letters of the word AGAIN. If these words are written as in dictionary, what will be the 50<sup>th</sup>, 54<sup>th</sup> and 58<sup>th</sup> word.

29. If  $a$  and  $b$  are the roots of  $x^2-3x+p=0$  and  $c, d$  are the roots of  $x^2-12x+q=0$ , where  $a, b, c, d$  form a G.P. Prove that  $(q+p):q-p = 17:15$

OR

Find the sum of the following series up to  $n$  terms:

1.  $5+55+555+\dots$  (b)  $0.6+0.66+0.666+\dots$

30. Find the derivative from the first principle of the function :

$F(x) = \sqrt{\tan x}$  OR  $F(x) = x \cos x$ .

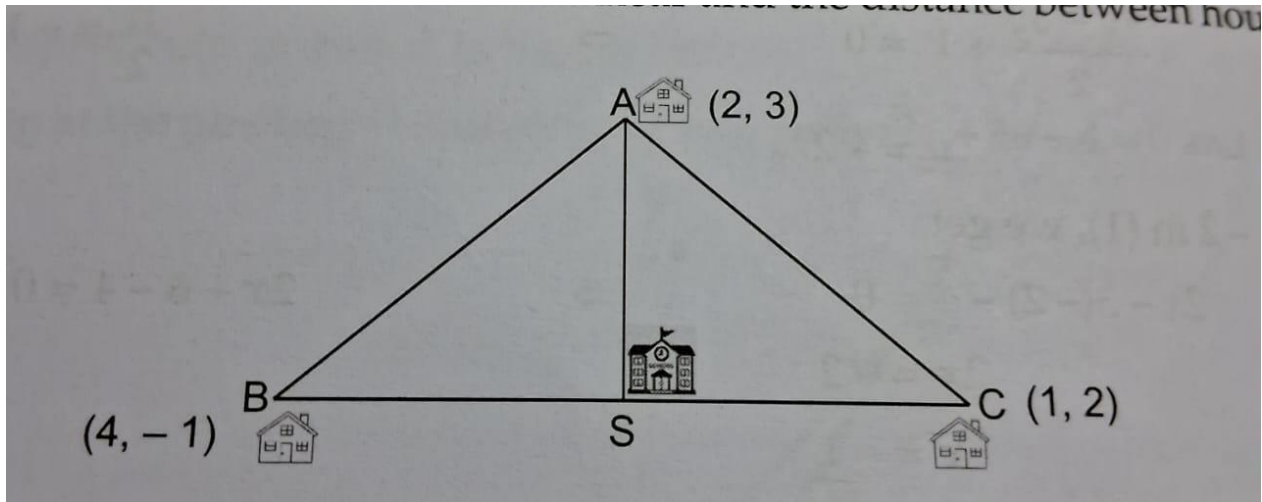
31. Calculate mean, variance and standard deviation for the following distribution:

Classes	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	7	12	15	8	3	2

SECTION-E (Case study based questions)

32. Location of houses A, B and C of three friends are given by the coordinates  $(2,3)$ ,

$(4,-1)$  and  $(1,2)$  respectively as shown in the figure. Their common school S, house B and C are collinear and the distance between house A and the school S is the shortest.



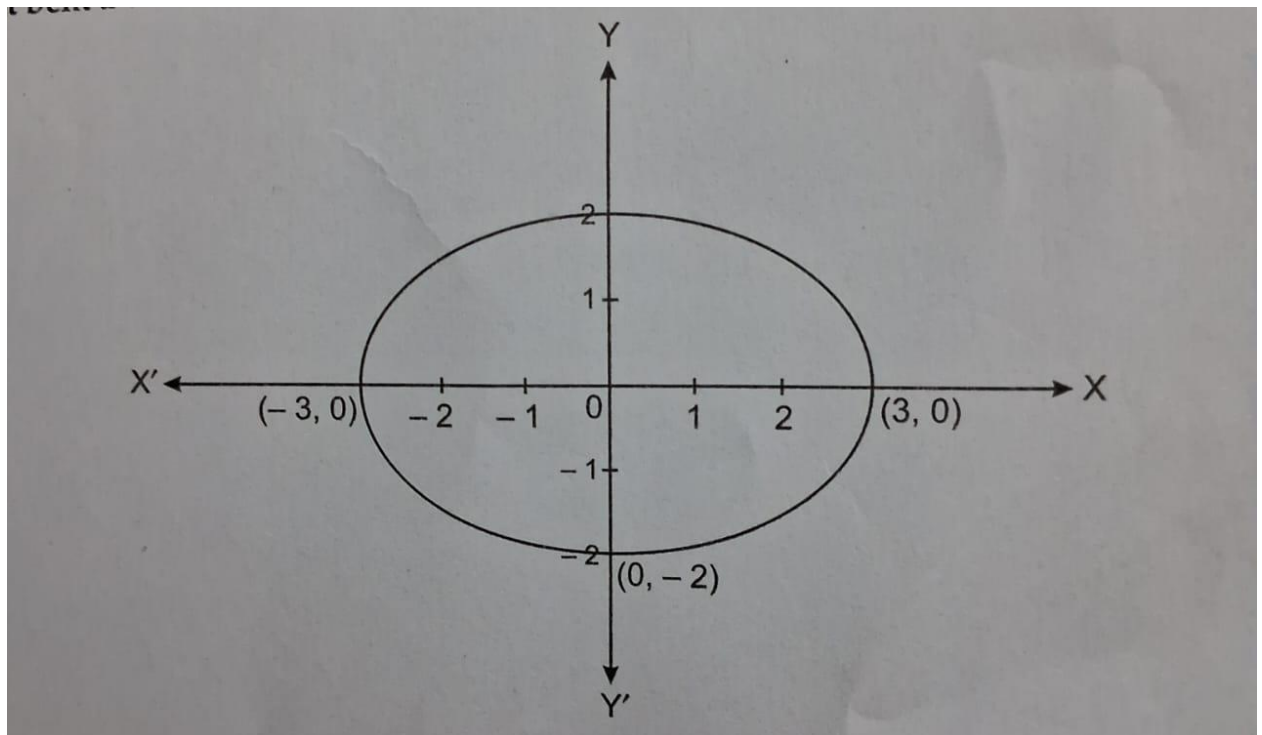
Using the given information ,answer the following questions :

- (i) Write the equation of straight line on which house B,C and the school S are situated. (1)
- (ii) Find the shortest distance from house A to school S. (1)
- (iii) Find the slope of AS and equation of AS. (2)

OR

- (iii) Reduce the equation of AS obtained above in intercept form. (2)

33. A student bent a wire in the shape of a section of a cone by a plane as shown in the figure .



Based on the above information, answer the following questions :

- (i) Write the name of the shape in which the wire is bent. (1)
- (ii) Find the equation of the shape of the curve. (1)

(iii) Find the eccentricity of the shape.

(2)

## PHYSICS

Time: 3 Hrs.

MM: 70

### General Instructions:

- (1) There are 35 questions in all. All questions are compulsory
- (2) This question paper has five sections: Section A, Section B, Section C, Section D, and Section E. All the sections are compulsory.
- (3) Section A contains 18 MCQs of 1 mark each, Section B contains 7 questions of two marks each, Section C contains 5 questions of three marks each, Section D contains 3 long questions of five marks each, and Section E contains two case study-based questions of 4 marks each.
- (4) There is no overall choice. However, sections B, C, and D have provided an internal choice. You have to attempt only one of the choices in such questions.
5. Use of calculators is not allowed.

### SECTION-A

1. The gravitational potential at the mid-point on the line joining the center of two identical spheres of masses  $M$  separated by distance  $r$  is: a) Zero      b)  $-GM/r$       c)  $-2GM/r$       d)  $-4GM/r$
2. If a particle moves with some acceleration, then which of the following can remain constant?  
a) Both speed and velocity      b) Neither speed and velocity      c) Only the velocity  
d) Only the speed
3. The magnitude of displacement of a particle  
a) Is equal to the path length of the particle between two points.  
b) Is less than the path length of the particle between two points.  
c) Is more than the path length of the particle between two points.  
d) Is either less or equal to the path length of the particle between two points.
4. The angle between the two vectors  $A = 5i + 5j$  and  $B = 5i - 5j$  will be: a) Zero      b)  $45^\circ$   
c)  $90^\circ$       d)  $180^\circ$
5. Two equal forces acting at a point with an angle of  $60^\circ$  between them. If the resultant force is equal to  $20\sqrt{3}$  N, then the magnitude of each force is: a) 40 N      b) 10 N  
c) 36 N      d) 20 N
6. A thief jumps from the roof of the house with a box of weight  $W$  on his head. The weight of the box as experienced by the thief during the jump is: a)  $W$       b)  $mg$       c) zero  
d) None of these
7.  $(\Delta Q - \Delta W)$  is: a) Path dependent      b) path independent      c) Equal to  $\Delta U$   
d) Both (b) and (c)
8. Using the first law of thermodynamics, which is true for the isothermal expansion of an ideal gas,  
a)  $\Delta U = +ve$       b)  $\Delta Q = +ve$       c)  $\Delta W = +ve$       d) Both (b) and (c)
9. Which of these is a Supplementary Unit: a) Mass      b) Time      c) Solid angle  
d) Luminosity
10. If the value of work done is  $10^{10} \text{ g-cm}^2 \text{ s}^{-2}$ , then its value in SI units will be  
a)  $10 \text{ kg-m}^2 \text{ s}^{-2}$       b)  $10^2 \text{ kg-m}^2 \text{ s}^{-2}$       c)  $10^4 \text{ kg-m}^2 \text{ s}^{-2}$       d)  $10^3 \text{ kg-m}^2 \text{ s}^{-2}$

equal to \_\_\_\_\_ acting on the system taken about the point.

- a) Sum of external force  
b) Sum of external momentum  
c) Sum of external torques  
d) None

12. In pure translational motion at any instant of time, all particles of the body have

- a) Different velocity  
b) Changing velocity  
c) Same velocity  
d) None

13. The sum of kinetic and potential energy is \_\_\_\_\_ when a missile is launched with a velocity less than the escape velocity. a) 0 b) Negative c) Positive d) None of these options

14. According to the law of equipartition of energy, in equilibrium the total energy is equally distributed in all possible energy modes having an energy equal to

- a)  $\frac{3}{2}$  KBT  
b)  $\frac{1}{2}$  KBT  
c) KBT  
d)  $\frac{5}{2}$  KBT

15. A copper block of mass 2.5 kg is heated in a furnace to a temperature of 500°C and then placed on a large ice block. What is the maximum amount of ice that can melt? (Specific heat of copper = 0.39 J g<sup>-1</sup> K<sup>-1</sup>; the heat of fusion of water = 335 J g<sup>-1</sup>)

- a) 1.5kg  
b) 1.3 kg  
c) 1.1 kg  
d) 1.7 kg

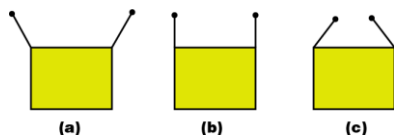
16. Why are airplanes made to run on the runway before taking off?

- a) It decreases friction.  
b) It decreases atmospheric pressure.  
c) It decreases the viscous drag of the air.  
d) It provides the required lift to the airplane.

17. The maximum velocity of the liquid up to which the flow is streamlined does not depend upon

- (a) Radius of the tube.  
(b) The pressure of the liquid.  
(c) Density of the liquid.  
(d) The viscosity of the liquid.

18. A rectangular frame is to be suspended symmetrically by two strings of equal length on two supports. It can be done in one of the following three ways:



The tension in the strings will be

- a) the same in all cases  
b) least in b)  
c) least in c)  
d) least in a)

### SECTION-B

19. A boy, standing on a stationary lift (open from above), throws a ball upwards with the maximum initial speed he can, equal to 49 m s<sup>-1</sup>. How much time does the ball take to return to his hands? If the lift starts moving up with a uniform speed of 5 m s<sup>-1</sup> and the boy again throws the ball up with the maximum speed he can, how long does the ball take to return to his hands?

20. Define the angle of repose and the angle of friction. Derive a relation between the two.

21. Underline the correct alternative and give a reason for that:

(a) When a conservative force does positive work on a body, the potential energy of the body increases/decreases/remains unaltered. (b) Work done by a body against friction always results in a loss of its kinetic/potential energy.

22. A stone dropped from the top of the tower touches the ground in 4 sec. Find the height of the tower. (Take  $g = 10 \text{ m/s}^2$ )

23. Derive an expression for the velocity of sound in air using the Laplace formula.

24. Calculate the quantity of heat required to convert  $10^{-2} \text{ kg}$  of ice at  $0^\circ\text{C}$  to steam at  $100^\circ\text{C}$ . (Given  $L_{\text{ice}} = 0.335 \times 10^6 \text{ J kg}^{-1}$ ,  $L_{\text{steam}} = 2.26 \times 10^6 \text{ J kg}^{-1}$ , Specific heat of water =  $4186 \text{ J kg}^{-1} \text{ K}^{-1}$ ).

25. Derive an expression for the Escape velocity from the surface of the Earth.

OR

Derive an expression for the gravitational potential energy.

### SECTION-C

26. If  $R$  is the horizontal range and  $h$  is the maximum height reached by the projectile at an inclination, show that the maximum range is given by  $\frac{R^2}{8h} + 2h$ .

27. Define the moment of inertia. Derive a relation between the moment of inertia with (i) angular momentum and (ii) Kinetic energy.

OR

Prove that the angular momentum of a particle is twice the product of its mass and areal velocity. How does it lead to Kepler's second law of planetary motion?

28. A bullet of mass  $0.012 \text{ kg}$  and horizontal speed  $70 \text{ ms}^{-1}$  strikes a block of wood of mass  $0.4 \text{ kg}$  and instantly comes to rest with respect to the block. The block is suspended from the ceiling by thin wire. Calculate the height to which the block rises. Also, estimate the amount of heat produced in the block.

29. Give analytical treatment of the formation of standing waves on strings and discuss briefly the normal modes of vibration of strings.

30. Derive a relation for the work done in an isothermal process.

### SECTION-D

31. What do you mean by excess pressure? Derive an expression each for excess pressure inside a soap bubble and a liquid drop.

OR

(a) State and prove Pascal's law. (b) Explain the principle, construction, and working of hydraulic lift.

(b) Explain why the angle of contact of mercury with glass is obtuse, while that of water with glass is acute.



32. (a) Derive expressions for Kinetic energy and potential energy of a harmonic oscillator. Show that total energy is conserved in simple harmonic motion.

(c) A body executes SHM of time period 8s. If its mass is 0.1 kg and velocity 1 second after it passes through its mean position is 4m/s, find its Kinetic energy, Potential energy, and Total energy.

OR

(a) Derive an expression for the time period of the horizontal oscillations of a loaded spring (in both series and parallel).

(b) Two identical springs each of force constant  $k$  are connected in (1) series (2) parallel and they support a mass  $m$ . Calculate the ratio of the frequencies of the mass in the two systems.

33. (i) The air bubble formed by an explosion inside water performs oscillations with time period  $T$  which depends on pressure ( $p$ ), density ( $\rho$ ), and on energy due to the explosion ( $E$ ). Establish a relation between  $T$ ,  $p$ ,  $E$ , and  $\rho$ . (ii) The velocity  $v$  of a particle depends upon the time 't' according to the equation

$$v=at^2+b\sqrt{t}+ct^3+\sqrt{dt}$$

Determine the units of  $a$ ,  $b$ ,  $c$ , and  $d$ . What physical quantities do they represent? All have SI units.

OR

(i) A particle is moving along a straight line and its position is given by the relation  $x=(t^3-6t^2-15t+40)$  m.

Find:

- The time at which velocity is zero.
- Position and displacement of the particle at that point.
- Acceleration

(ii) **A player throws a ball upwards with an initial speed of 29.4 m/s.**

**(a) What is the direction of acceleration during the upward motion of the ball?**

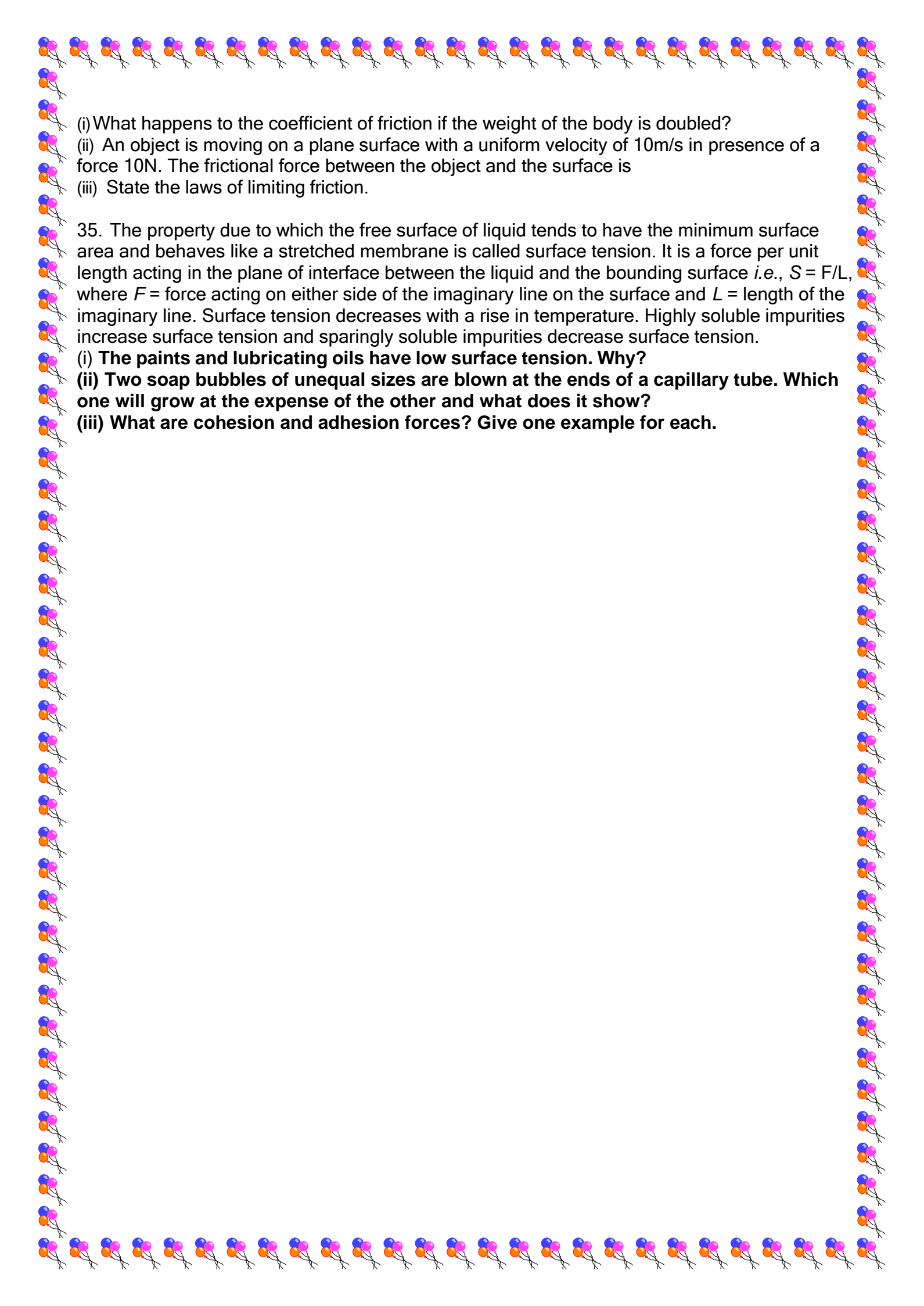
**(b) Choose the  $x = 0$  m and  $t = 0$  s to be the location and time of the ball at its highest point, vertically downward direction to be the positive direction of the  $x$ -axis, and give the signs of position, velocity, and acceleration of the ball during its upward and downward motion.**

**(c) To what height does the ball rise, and after how long does the ball return to the player's hands? (Take  $g = 9.8 \text{ m s}^{-2}$  and neglect air resistance).**

## SECTION-E

### Case-based questions

**34. Friction:** Suppose a force  $F$  is applied horizontally to the body. We know from experience that a small applied force may not be enough to move the body. But if the applied force  $F$  were the only external force on the body, it must move with acceleration  $F/m$ , however small. Clearly, the body remains at rest because some other force comes into play in the horizontal direction and opposes the applied force  $F$ , resulting in zero net force on the body. This force  $f_s$  parallel to the surface of the body in contact with the table is known as frictional force, or simply friction. As the applied force  $F$  increases,  $f_s$  also increases, remaining equal and opposite to the applied force (up to a certain limit), keeping the body at rest. Hence, it is called static friction. Static friction opposes impending motion.

- 
- (i) What happens to the coefficient of friction if the weight of the body is doubled?  
(ii) An object is moving on a plane surface with a uniform velocity of 10m/s in presence of a force 10N. The frictional force between the object and the surface is  
(iii) State the laws of limiting friction.

35. The property due to which the free surface of liquid tends to have the minimum surface area and behaves like a stretched membrane is called surface tension. It is a force per unit length acting in the plane of interface between the liquid and the bounding surface *i.e.*,  $S = F/L$ , where  $F$  = force acting on either side of the imaginary line on the surface and  $L$  = length of the imaginary line. Surface tension decreases with a rise in temperature. Highly soluble impurities increase surface tension and sparingly soluble impurities decrease surface tension.

- (i) **The paints and lubricating oils have low surface tension. Why?**  
(ii) **Two soap bubbles of unequal sizes are blown at the ends of a capillary tube. Which one will grow at the expense of the other and what does it show?**  
(iii) **What are cohesion and adhesion forces? Give one example for each.**

# CHEMISTRY

Time: 3 Hours

MM:60

## General Instructions

Read the following instructions carefully.

- All questions are compulsory.
- There are 29 questions in this question paper with internal choice.
- SECTION A consists of 14 multiple-choice questions carrying 1 mark each.
- SECTION B consists of 5 very short answer questions carrying 2 marks each.
- SECTION C consists of 6 short answer questions carrying 3 marks each.
- SECTION D consists of 2 case- based questions carrying 4 marks each.
- SECTION E consists of 2 long answer questions carrying 5 marks each.

## SECTION A

***The following questions are multiple -choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.***

Q1. The ionisation enthalpy of nitrogen is more than that of oxygen molecules because of

- greater attraction of electrons by the nucleus
- extra stability of the half-filled p-orbitals
- smaller size of nitrogen
- more penetrating effect

Q2. Which is state function?

- (a)  $q$                       (b)  $w$                       (c)  $q + w$                       (d) None of these

Q3. In which of the following reactions, the equilibrium remains unaffected on addition of small amount of argon at constant volume?

- $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightarrow 2\text{HI}(\text{g})$
- $\text{PCl}_5(\text{g}) \rightarrow \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$
- $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
- The equilibrium will remain unaffected in all the three cases.

Q4. The enthalpies of elements in their standard states are taken as zero. The enthalpy of formation of a compound

- is always negative
- is always positive
- may be positive or negative
- is never negative

Q5. Acidity of  $\text{BF}_3$  can be explained on the basis of which of the following concepts?

- (a) Arrhenius concept (b) Bronsted Lowry concept  
(c) Lewis concept (d) Bronsted Lowry as well as Lewis concept.

Q6. Electronegativity of carbon atoms depends upon their state of hybridisation. In which of the following compounds, the carbon marked with asterisk is most electronegative?

- (a)  $\text{CH}_3 - \text{CH}_2 - \text{*CH}_2 - \text{CH}_3$  (b)  $\text{CH}_3 - \text{*CH} = \text{CH} - \text{CH}_3$   
(c)  $\text{CH}_3 - \text{CH}_2 - \text{C} \equiv \text{*CH}$  (d)  $\text{CH}_3 - \text{CH}_2 - \text{CH} = \text{*CH}_2$

Q7. In which of the following, functional group isomerism is not possible?

- (a) Alcohols (b) Aldehydes (c) Alkyl halides (d) Cyanides

Q8. Arrange the following hydrogen halides in order of their decreasing reactivity with propene.

- (a)  $\text{HCl} > \text{HBr} > \text{HI}$   
(b)  $\text{HBr} > \text{HI} > \text{HCl}$   
(c)  $\text{HI} > \text{HBr} > \text{HCl}$   
(d)  $\text{HCl} > \text{HI} > \text{HBr}$

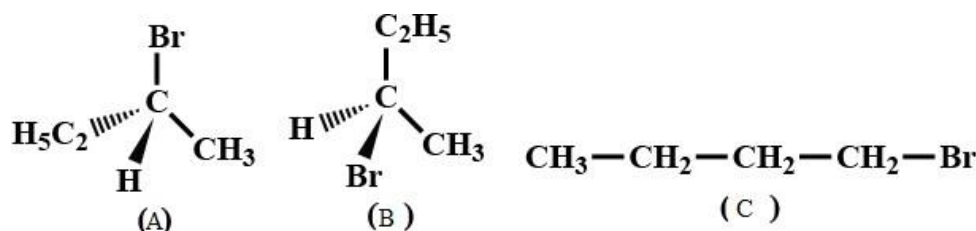
Q9. cis-2-butene and trans 2-butene are

- (a) conformational isomers  
(b) structural isomers  
(c) geometrical isomers  
(d) optical isomers

Q10. The displacement of electrons in a multiple bond in the presence of attacking reagent is called

- (a) Inductive effect  
(b) Electromeric effect  
(c) Resonance  
(d) Hyper conjugation

Q11. The addition of HBr to 1-butene gives a mixture of products A, B and C



The mixture consists of

- (a) A and B as major and C as minor products
- (b) B as major, A and C as minor products
- (c) B as minor, A and C as major products
- (d) A and B as minor and C as major products

Q12. Assertion (A): The physical equilibrium is not static but dynamic in nature.

Reason (R): The physical equilibrium is a state in which two opposing process are proceeding at the same rate.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

Q13. Assertion (A) : Among isomeric pentanes, 2, 2-dimethylpropane has highest boiling point.

Reason (R) : Branching does not affect the boiling point.

- (a) Both A and R are correct and R is the correct explanation of A.
- (b) Both A and R are correct but R is not the correct explanation of A.
- (c) Both A and R are not correct.
- (d) A is not correct but R is correct.

Q14. Assertion (A): Enthalpy of formation of HCl is equal to bond energy of HCl.

Reason (R): Enthalpy of formation and bond energy both involve the formation of one mole of HCl from the elements.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

## SECTION B

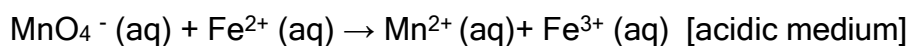
***The following questions are very short answer type and carry 2 marks each.***

Q15. Derive the relationship  $C_p - C_v = R$ .

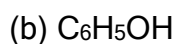
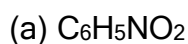
Q16.  $\text{BF}_3$  does not have proton but still acts as an acid and reacts with  $\text{NH}_3$ . Why is it so?

What type of bond is formed between the two?

Q17. Write the balanced redox reaction



Q18. Draw the resonance structures for the following compounds. Show the electron shift using curved arrow notation.



OR

Q18. Which of the two:  $\text{O}_2\text{NCH}_2\text{CH}_2\text{O}^-$  or  $\text{CH}_3\text{CH}_2\text{O}^-$  is expected to be more stable and why?

Q19. An alkene A on ozonolysis gives a mixture of ethanol and pentan-3-one. Write IUPAC name of element.

### SECTION C

**The following questions are short answer type and carry 3 marks each.**

Q20. (a) What is covalency of Al in  $[\text{AlCl}_4]^-$  ?

(b) Which element is iso-electronic with  $\text{Na}^+$  ?

(c) An element is placed in 5th period and 3rd group what is its atomic number?

Q21. (a) Find the group number and period number of element having atomic number 52.

(b) Which pair of elements has similar properties? 13, 31, 11 & 21

(c) Elements of s-blocks and p-blocks are collectively called \_\_\_\_\_.

Q22. Draw the Lewis structure of the species as mentioned below:

(a) In which the central atom has incomplete octet.

(b) In which the central atom has an expanded octet,

(c) An odd electron molecule is formed.

Q23. (a) Define entropy.

(b) Predict in which of the following, entropy increases / decreases:

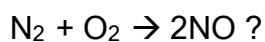
(i) A liquid crystallizes into a solid.

(ii) Temperature of a crystalline solid is raised from 0K to 115K.

Q24. State Le Chatelier's principle. Name any two factors which can influence the equilibrium.

OR

Q24. At equilibrium, the concentrations of  $\text{N}_2 = 3.0 \times 10^{-3} \text{ M}$ ,  $\text{O}_2 = 4.2 \times 10^{-3} \text{ M}$  and  $\text{NO} = 2.8 \times 10^{-3} \text{ M}$  in a sealed vessel at 800 K. What will be  $K_c$  for the reaction



Q25. Explain the following by taking one example of each:

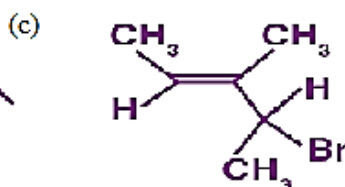
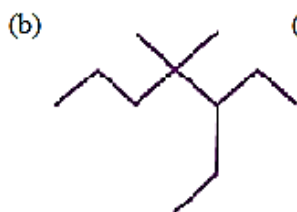
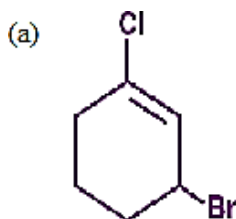
(a) Wurtz reaction

(b) Kolbe's electrolytic method

(c) Markovnikov rule

OR

Q25. Give the IUPAC names of the following compounds :



### SECTION D

**The following questions are case-based questions. Each question has an internal choice and carries 4 marks each (1+1+2). Read the passage carefully and answer the questions that follow.**

Q26. For explaining the characteristic shapes of polyatomic molecules Pauling introduced

the concept of hybridisation of atomic orbitals.  $sp$ ,  $sp^2$ ,  $sp^3$  hybridizations of atomic orbitals of Be, B, C, N and O are used to explain the formation and geometrical shapes of molecules like  $BeCl_2$ ,  $BCl_3$ ,  $CH_4$ ,  $NH_3$  and  $H_2O$ . They also explain the formation of multiple bonds in molecules like  $C_2H_2$  and  $C_2H_4$ .

The molecular orbital (MO) theory describes bonding in terms of the combination and arrangement of atomic orbitals to form molecular orbitals that are associated with the molecule as a whole. The number of molecular orbitals are always equal to the number of atomic orbitals from which they are formed. Bonding molecular orbitals increase electron density between the nuclei and are lower in energy than the individual atomic orbitals. Antibonding molecular orbitals have a region of zero electron density between the nuclei and have more energy than the individual atomic orbitals.

Answer the following questions:

- Name the geometry involved in  $sp^3d$  hybridization.
- How many sigma and pi bonds are present in HCN molecule?
- $N_2$  is diamagnetic while  $O_2$  is paramagnetic. Explain on the basis of Molecular orbital theory.

OR

(c) Give reasons for the following:

- $NH_3$  has higher boiling point than  $PH_3$ .
- Ionic compounds do not conduct electricity in solid state.

Q27. Organic reaction mechanism concepts are based on the structure of the substrate molecule, fission of a covalent bond, the attacking reagents, the electron displacement

effects and the conditions of the reaction. These organic reactions involve breaking and making of covalent bonds. A covalent bond may be cleaved in heterolytic or homolytic fashion. A heterolytic cleavage yields carbocations or carbanions, while a homolytic cleavage gives free radicals as reactive intermediate. Reactions proceeding through heterolytic cleavage involve the complimentary pairs of reactive species. These are electron pair donor known as nucleophile and an electron pair acceptor known as electrophile. The inductive, resonance, electromeric and hyperconjugation effects may help in the polarisation of a bond making certain carbon atom or other atom positions as places of low or high electron densities.

Answer the following questions:

(i) What do you understand by Homolytic fission?

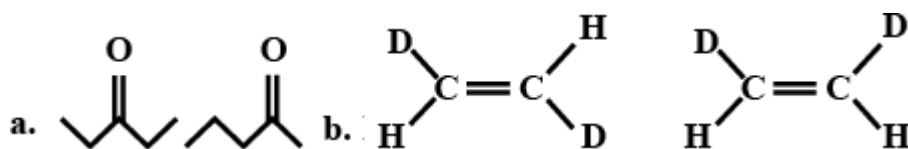
OR

(i) Define the term conformation.

(ii) What are carbanions? Give an example.

(iii) What is the relationship between the members of following pairs of structures?

Are they structural or geometrical isomers or resonance contributors ?



### SECTION E

**The following questions are long answer type and carry 5 marks each.**

Q28. (a) Write the mechanism of Friedel craft alkylation of benzene.

(b) How will you convert benzene into

(i) *p*-nitrobromobenzene

(ii) *m*- nitrochlorobenzene

(c) Draw the *cis* and *trans* structures of hex-2-ene.

OR

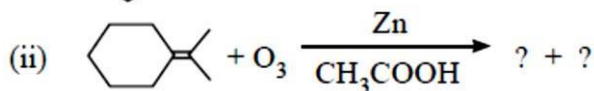
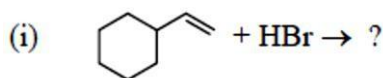
Q28. (a) Give a chemical test to distinguish between:

(i) Ethene and ethane

(ii) Ethene and Ethyne



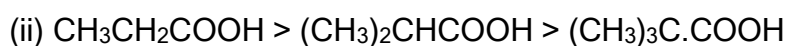
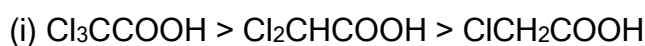
(b) Complete the reaction:



(c) What happens when But-2-ene reacts with acidified potassium permanganate solution?

Q29. a) Explain the terms Inductive and Electromeric effects.

b) Which electron displacement effect explains the following correct orders of acidity of the carboxylic acids?



c) Distinguish between position isomerism and functional isomerism.

OR

Q29. a) Addition of HBr to propene yields 2-bromopropane, while in the presence of benzoyl peroxide, the same reaction yields 1-bromopropane. Explain

b) Write one difference between electrophiles and nucleophiles ?

c) What is metamerism? Give one example.

## ACCOUNTANCY

Time: 3 hours

M.M: 70

### General Instructions:

1. This question paper has 31 Questions. All the questions are compulsory.
2. All parts of questions should be attempted at one place.
3. Marks are given at the end of each question.
4. Please write down the serial number of the questions before attempting them.

1. Cash Memo is

a) a journal   b) Transfer Voucher   c) a source voucher   d) an accounting voucher

2. **Assertion (A):** Accounting information is sometimes based on estimations.

**Reason (R):** The financial statements always reflects true position of the business.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

3. Which account will be debited if proprietor pays ₹ 5,000 as life insurance premium from business cash?

a) Bank A/c    b) Drawings A/c    c) Cash A/c    d) Insurance A/c

4. Which of the following is the correct accounting equation for repayment of loan amount of ₹

1,00,000 along with interest of ₹ 10,000?

- a) Assets (1,00,000) = Liabilities (1,00,000) + Capital (0)
- b) Assets (1,10,000) = Liabilities (0) + Capital (1,10,000)
- c) Assets (1,10,000) = Liabilities (1,00,000) + Capital (10,000)
- d) Assets (1,10,000) = Liabilities (1,10,000) + Capital (0)

OR

A business had net capital at 1 January and 31st December 2012 of Rs. 75,600 and Rs. 73,800 respectively. During the year, the proprietor introduced additional capital of Rs. 17,700 and withdrew cash and goods to the value of Rs. 16,300.

What profit or loss was made by the business in 2012.

- a) Rs.3000 Profit    b) Rs.3200 Profit    c) Rs.3200 Loss    d) Rs.3000 Loss

5. When goods are purchased against cash, the purchaser will get:

- a) Cash Memo    b) Accounting Voucher    c) transfer Voucher    d) Invoice

6. A person or an enterprise which is not in a position to pay its debts is called \_\_\_\_\_.

- a) Solvent    b) Both Insolvent and Bad debtor    c) Insolvent    d) Bad debtor

OR

Accounting function is \_\_\_\_\_ in nature.

- a) clerical    b) routine    c) analytical    d) Both routine and analytical

7. Revenue Reserve is created:

- a) Out of general profits
- b) Out of capital profits
- c) Out of profits on the purchase of a running business
- d) Out of profits on sale of fixed assets

8. Which of the following accounts has a credit balance?

- a) Discount Allowed    b) Discount Received    c) Carriage Inward    d) Carriage Outward

OR

Consider the following statements with regard to the accounting treatment of various accounts:

- i. Increase in asset is debited and decrease in asset is credited.
- ii. Increase in expenses/losses is debited and decrease in expenses/ losses is credited.
- iii. Increase in liabilities is credited and decrease in liabilities is debited.
- iv. Increase in capital is credited and decrease in capital is debited.

Identify the correct statement/statements:

- a) i and ii    b) i, iii and iv    c) i, ii, iii and iv    d) ii and iii

9. Which of the following methods of accounting is/are recognised by Companies Act, 2013?

- a) Cash basis of accounting
- b) Both (Cash basis of accounting) and (Accrual basis of accounting)
- c) Can't be determined
- d) Accrual basis of accounting

10. At the time of goods sold, output CGST/SGST/IGST account is credited because it is a/an

- a) Liability    b) Assets    c) Revenue/income    d) Accrued income

11. Under what situations does a business invest the fund outside

- A. Ready cash is required at a future date
- B. The funds cannot be profitably invested in the business itself

- a) (A)    b) Both (A) and (B)    c) None of these    d) (B)

12. The term current assets include:

- a) Building      b) Machinery      c) Debtors      d) Motor Vehicle

13. In which book credit sales of goods are recorded

- a) Purchase Book      b) Purchase Return Book      c) Sales Return book      d) Sales Book

14. For which of the following transactions, assets and capital will decrease by same amount?

- a) Goods sold for cash at a profit      b) Depreciation provided on fixed assets  
c) Goods sold for cash      d) Fixed asset purchased on credit

15. Amount paid or payable against the purchase of goods is:

- a) cash expenditure      b) revenue expenditure  
c) capital expenditure      d) Both (a) and (b)

OR

Which is the evidence of business transaction:

- a) Journal      b) Ledger      c) Balance Sheet      d) Voucher

16. Purchases Book is a part of:

- a) The Balance Sheet      b) The Ledger      c) The Trading Account      d) The Journal

17. Reserves arising from capital receipts are known as:

- a) Specific reserve      b) Capital Reserve      c) Reserve Fund      d) Capital Reserve & Reserve Fund

18. If the Opening capital is ₹60,000, drawings ₹5,000, capital introduced during the period ₹10,000, closing capital ₹90,000. The value of profit earned during the period will be:

- a) ₹30,000      b) ₹20,000      c) ₹25,000      d) ₹40,000

OR

Capital in the beginning - Rs.24,000, profit made during the year - Rs.4,000, drawings - Rs.8,000, Capital introduced during the year- Rs.12,000. Calculate capital at the end

- a) Rs.35,000      b) Rs.20,000      c) Rs.32,000      d) Rs.28,000

19. Types of account shown in the balance sheet are

- a) Nominal and real      b) Nominal and personal      c) Nominal only      d) Real and Personal

20. Name and briefly discuss the principal book of accounting system.

OR

Journalise the following:

**2023** March 4 Purchased building for ₹ 1,50,000 and incurred expenses of ₹ 10,000 on its purchase.

March 10 Santosh who owed us ₹ 20,000 is declared insolvent and 60 paise per ₹ is received from his estate.

March 15 Paid ₹ 500 for repairing the office furniture.

March 18 Proprietor withdrew for his personal use cash ₹ 5,000 and goods worth ₹ 2,000.

March 20 Purchased the following items for business:

Iron Safe ₹ 15,000; Filing Cabinet ₹ 5,000; Computer ₹ 12,000; Postage ₹ 200 and Stationery ₹ 150.

March 28 Paid electricity charges ₹ 1,600.

March 31 Charge depreciation on Machinery @ 10% for one year (Machinery ₹ 75,000).

March 31 Outstanding Wages at the end of the year ₹ 6,000.

21. Distinguish between Single Entry System and Double Entry System of book Keeping.

22. What is the difference between trade discounts and cash discounts?

23. Define capital expenditure. Give six examples of capital expenditure.

24. Calculate Closing Stock from the following:

Particulars	₹	Particulars	₹
Opening Stock	38,000	Sales	3,60,000
Purchases	3,40,000	Return Inwards	5,000
Return Outwards	4,000	Gross Loss	20,000
Freight Inwards	26,000		

25. From the following Ledger account balances extracted from the books of Shivank, prepare a Trial Balance as on 31st March, 2023:

	₹		₹
Purchases	1,04,000	Drawings	7,950
Sundry Debtors	18,550	Sundry Creditors	8,300
Premises	62,000	Returns Inward	5,360
Sales	1,49,000	Furniture	15,600
Returns Outward	8,900	Cash in Hand	390
Discount Allowed	780	Capital	85,000
Cash at Bank	1,560	Factory Wages	5,830
Carriage Inwards	650	Carriage Outwards	260
Salaries	3,900	Rent Received	2,990
Stock (1st April, 2022)	25,000	Insurance	2,100
Input IGST A/c	5,000	Bad Debts	260
Input CGST A/c	2,500	Output IGST A/c	10,000
Input SGST A/c	2,500		

26. Explain the need for drawing up the special purpose books.

27. On 31st December, 2023 the Pass Book of Mrs. Menon's Current Account showed a credit balance of ₹20,000. Prepare a Bank Reconciliation Statement with the following information:

- Mr. Menon issued a cheque of ₹300 on 25th December, but this was not presented for payment whereas this was recorded twice in the Cash Book.
- A cheque of ₹200 drawn on his Saving Deposit Account has been shown as drawn on Current Account in Cash Book.
- A cheque of ₹285 issued on 28th December, was taken in the cash column.
- In the Pass Book, a Bank charge of ₹25 was recorded twice while another Bank charge of ₹17 was not recorded in the Cash Book.

OR

From the following particular, prepare the bank reconciliation statement of Shri Krishan as on 31st March, 2024

- Balance as per pass book is ₹ 10,000.
- Bank collected a cheque of ₹ 500 behalf of Shri Krishan but wrongly credited it to Shri Krishan's account.
- Bank recorded a cash deposit of ₹ 1,589 as ₹ 1,598.
- Withdrawal column of the passbook undercast by ₹ 100.
- The credit balance of ₹ 1,500 as on the passbook was recorded in the debit balance.
- The payment of a cheque of ₹ 350 was recorded twice in the passbook.
- The passbook showed a credit balance for a cheque of ₹ 1000 deposited by Shri Krishan.

28. Journalise the following transactions in the books of B.K. Agencies:

- Received from Bhuwan cash ₹ 20,000, allowed him discount of ₹ 500.
- Received from Vinay ₹ 35,000 by cheque, allowed him discount of ₹ 750.
- Received cash from Ankit ₹ 38,000 in settlement of his dues of ₹ 40,000.

- iv. Received from Ajay ₹ 50,000 by cheque on account against dues of ₹ 60,000.
- v. Paid cash ₹ 39,200 to Suraj in settlement of his dues, availed discount of 2%.
- vi. Paid by cheque ₹ 25,000 to Mehta and settled her dues of ₹ 26,000.
- vii. Paid ₹ 25,000 to Yuvraj by cheque on account.
- viii. Purchased goods costing ₹ 1,00,000 against cheque and availed discount of 3%.
- ix. Purchased goods costing ₹ 60,000 from Aman & Co., paid 50% immediately availing 3% discount.
- x. Sold goods of ₹ 30,000 against cheque allowing 2% discount.
- xi. Sold goods of ₹ 60,000 to Viraj received 50% of due amount allowing 2% discount.
- xii. Kumar Bros, purchased 100 shawls @ ₹ 3,000 per shawl. Allowed 10% Trade Discount and 3% Cash Discount if payment is made within 14 days. Kumar Bros, received 10 shawls of poor quality, which it returned. Kumar Bros, settled the payment in 10 days.
- xiii. Sold to Sharma Shawls, 100 shawls @ ₹ 200 per shawl on 4th January, 2023. Trade Discount 25% and Cash Discount 5% if full payment is made within 14 days. Sharma Shawls sent 50% of the payment on 14<sup>th</sup> January, 2023 and balance payment on 10<sup>th</sup> February, 2023.

OR

Analyse the following transactions, state the nature of accounts and the account that will be debited and credited as per the Traditional Classification of Accounts:

- i. Deepak started business introducing capital of ₹ 1,50,000 in cash.
  - ii. Opened a Bank Account by depositing ₹ 1,00,000 in cash.
  - iii. Received Loan of ₹ 1,00,000 from Naveen by cheque.
  - iv. Purchased furniture for ₹ 20,000 in cash from Raj Furniture House.
  - v. Purchased furniture from U.P. Safe for ₹ 40,000.
  - vi. Purchased goods for cash ₹ 15,000.
  - vii. Purchased goods from Manoj ₹ 30,000.
  - viii. Sold goods to Kamal for cash ₹ 25,000.
  - ix. Sold goods to Sumit on credit ₹ 30,000.
  - x. Cash received from Sumit ₹ 20,000.
  - xi. Cash paid to Manoj ₹ 10,000.
29. Rectify the following errors which were detected before preparing the Trial Balance:
- i. The total of Sales Book carried forward ₹ 5,000 less.
  - ii. A credit sale to Geeta ₹ 6,300 posted as ₹ 3,600.
  - iii. A credit sale to Krishna ₹ 2,400 posted as ₹ 4,200.
  - iv. A credit sale to Pratibha ₹ 3,000 credited to her account.
  - v. A credit sale to Monika ₹ 5,600 credited as ₹ 6,500

OR

Rectify the following errors:

- i. ₹ 4,500 spent on the extension of Buildings were debited to Repairs A/c.
- ii. Wages paid to the firm's own workmen ₹ 3,600 for the installation of a new machinery were posted to Wages Account.
- iii. The contractor's bill for the construction of a godown at a cost of ₹ 10,000 has been charged to Repairs A/c.
- iv. ₹ 1,500 paid as Wages to a worker **Brijesh Pal**, has been debited to his personal account.
- v. Old furniture sold for ₹ 500 has been credited to Sales Account.
- vi. A cheque of ₹ 620 received from Ryan, has been wrongly credited to Sarthak.

30. On April 1, 2020, Z Ltd. purchased a plant for ₹ 5,00,000. On 1st October in the same year, additional plant costing ₹ 2,00,000 was purchased. On 1st October 2021, the plant purchased on 1st April 2020, having become obsolete was sold off for ₹ 2,65,000. On 1st July 2022, new plant was purchased for ₹ 8,00,000 and on the same date plant purchased on 1st October 2020 was sold for ₹ 1,70,000. The firm provides depreciation @ 10% p.a. on original cost on 31st March every year.

You are required to show

- i. Plant Account,
- ii. Depreciation Account, and
- iii. Provision for Depreciation Account for three accounting years ending 31st March, 2023.

OR

Following balance appear in the books of M/s Anandi as on 1st April 2022:

	₹
Machinery Account	60,000
Provision for depreciation A/c	36,000

On 1st April 2022, they decided to dispose off machinery for ₹ 8,400, which was purchased on 1st April 2018 for ₹16,000. You are required to prepare Machinery Account, Provision for Depreciation Account and Machinery Disposal A/c for the year 2022-23. Depreciation was charged at 10% p.a. on original cost method.

31. From the following Trial Balance of P. Pawar, prepare Trading and Profit & Loss Account for the year ended 31st March, 2023 and Balance Sheet as at that date:

	Dr. (₹)	Cr. (₹)
Purchases and Sales	2,75,000	5,20,000
Returns Inwards	15,000	
Returns Outwards		9,000
Carriage	12,400	
Wages and Salaries	58,600	
Trade Expenses	2,200	
Rent	13,000	
Insurance	2,000	
Audit Fees	1,200	
Debtors and Creditors	1,10,000	62,100
B/R and B/P	3,300	2,200
Printing and Advertising	5,500	
Commission		8,000
Opening Stock	36,000	
Cash in hand	19,800	
Cash at Bank	26,800	
Bank Loan		20,000
Interest on Loan	1,500	
Capital		2,50,000
Drawings	15,000	
Fixed Assets	3,00,000	
	<b>8,84,300</b>	<b>8,84,300</b>

### Adjustments:-

- i. Stock at the end ₹ 60,000.
- ii. Depreciate Fixed Assets by 10%.
- iii. Commission earned but not received amounts to ₹ 2,000.
- iv. Rent received in advance ₹ 1,000.
- v. Allow 8% interest on Capital and charge ₹ 900 as interest Drawings.

OR

From the following trial balance, prepare the trading and profit and loss account for the year ended 31st March, 2024 and the balance sheet as at that date.

Name of Accounts	Amt(Rs)	Name of Accounts	Amt(Rs)
Salaries	20,446	Sales	1,32,840
Bills receivable	12,754	Capital	1,00,000
Investments	80,000	Provision for doubtful debts	5,000
Furniture	24,000	10% Loan (1st October, 2023)	20,000
Opening stock	9,000	Discount received	800
Purchases	60,000	Sundry creditors	18,600
Sundry debtors	40,000	Bills payable	10,000
Interest on loan	800	Outstanding salaries	1,000
Insurance premium	1,800	Bad debts recovered	400
Wages	9,200	Interest on investments	4,000
Rent	3,040	Trading commission	14,000
Bad debts	2,400		
Carriage Outwards	1,200		
Cash at Bank	20,000		
Depreciation of furniture	5,000		
Accrued commission	2,000		
Advertisement	15,000		
	3,06,640		3,06,640

### Additional Information

- i. Closing stock Rs 12,000.
- ii. Goods costing Rs 2,000 were distributed as free samples while goods costing Rs 1,000 were taken by the proprietor for personal use.
- iii. A credit sale of Rs 4,000 was not recorded in the sales book.
- iv. Closing stock included goods costing Rs 2,000 which were sold and recorded as sales but not delivered to the customer.
- v. Maintain provision for doubtful debts @ 5%.

## **BUSINESS STUDIES**

Time: 3 hours

M.M: 70

### **General Instructions:**

1. This question paper has 32 Questions. All the questions are compulsory.
  2. All parts of questions should be attempted at one place.
  3. Marks are given at the end of each question.
  4. Please write down the serial number of the questions before attempting them.
- 

1. Business transaction taking place within the geographical boundaries of a nation is known as a domestic or national business. It is also referred to as internal business or home trade. Manufacturing and trade beyond the boundaries of one's own country is known as international business. Permitting another party in a foreign country to produce and sell goods under your trademarks, patents, or copyrights in lieu of some fee is another way of entering into international business. This is through \_\_\_\_\_.

a) sale of goodwill    b) sale of copyrights    c) sale of trademark    d) licensing and franchising

2. In which year National Small Industries Corporation (NSIC) was set up?

a) 1953    b) 1954    c) 1956    d) 1955

a) Joint Hindu Family    b) All of these    c) Sole Proprietorship    d) Partnership

3. Which of the following comes under the private sector

4. On which basis fixed-shop retailers are classified into small shopkeepers and large retailers?

a) Size of their operations    b) Type of ownership  
c) Place of business    d) Merchandise handled

5. Expand KVIC

a) King of Village Investment Culture    b) Khadi and Village Industries Commission  
c) Khadi and Village Industries Core    d) King of Village Industries Commission

6. What is the method payment chosen by the customer at the time of physical delivery of goods?

a) Credit card payment    b) Cash on delivery    c) Debit card payment    d) Prepaid amount

7. Preliminary Contracts are signed:

a) after the commencement of business    b) after incorporation  
c) after incorporation but before the capital subscription    d) before the incorporation

8. Which of the following issues faced by small businesses is incorrect regarding the raw material required by them for production?

a) Low bargaining power due to the small quantity of purchases made by them  
b) Required raw materials are not available easily  
c) Large storage facilities to store the materials  
d) Compromise on the quality as they have to pay high prices to get good quality materials



9. Which of the following statements is incorrect regarding debentures?

- A. Interest paid on debentures is tax-deductible.
- B. Debentures do not carry voting rights.
- C. It preferred by investors who want fixed income at lesser risk.
- D. Issue of debentures dilutes the control of equity shareholders on management.

- a) Only C      b) Only B      c) Only D      d) Only A

10. **Assertion (A):** The principle of 'one man one vote' governs the cooperative society.  
**Reason (R):** Irrespective of the amount of capital contribution by a member, each member is entitled to equal voting rights.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

11. To selling only children garments is the example of:

- a) General Store      b) Single-product shop      c) Single line shop      d) Specific shop

12. Which of the following statements is correct for wholesalers:

- a) They undertake additional activities.
- b) They generally take the title of the goods and bear the business risks in their own name.
- c) They engage in buying and selling of goods
- d) All of these

13. The Karta in Joint Hindu family business has \_\_\_\_\_.

- a) Unlimited liability      b) Limited liability      c) No liability for debts      d) Joint liability

14. Which of the following is part of Village and Small Industries Sector?

- a) Handlooms      b) All of these      c) Sericulture      d) Handicrafts

15. Noise pollution can be responsible for:

- a) mental disorder      b) all of these      c) loss of hearing      d) malfunctioning of the heart

16. **Assertion (A):** In case of loss arising out of any mishap, the most proximate cause of the mishap should be taken into consideration.

**Reason (R):** Principle of Proximate Cause says that the direct, most dominant and most effective cause of the loss should be given priority.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

17. Expand DIC

- a) District Industries Centers      b) Directorate of Indian company  
c) Directorate of Indian Corporation      d) Directorate of Industry Corporation

18. Which of the following is not known as service industry?

- a) Insurance Industry      b) Advertising Industry      c) Processing Industry      d) Banking Industry

19. Who among the following are the highest risk-takers?

- a) People practicing a profession
- b) People engaged in career employment
- c) Entrepreneurs
- d) All of these

20. Preliminary Contracts are:

- a) binding on the company
- b) binding on the guarantor
- c) not binding on the company
- d) binding on the promoters

21. Why is it necessary to get registered with an Export Promotion Council?

22. Bhavesh is running a Bakery Shop under the name 'Puri Bakers'. On the occasion of his relative's birthday, he supplied Cakes, Pastries and Pizza worth ₹ 3,000. However, Bhavesh refused to take money from his relative. Will this supply of items from Bhavesh's Bakery will be classified as a business activity?

OR

Explain primary and secondary industries with the help of examples.

23. On a holiday, Dr. Ramdhari Arya accompanied his wife and two children to market for shopping. For shopping, they reached such a place where there were several small shops

located in a big building. All of them, very delightfully and easily, was moving from one shop to another. At these shops, the children liked several things.

Dr. Arya bought all the things which were liked by the children. Here, along with goods, there was a full arrangement for entertainment and food. The special characteristic of this shopping complex was that it was located at such a place in the city where all the people could come easily. After roaming about for some time, the children insisted on having a cold drink. When the children looked around, they found a machine set up in a corner. On the machine, it was written: **Fresh Cold Drink, Only For You!** In accordance with the instruction written on the machine, soon after inserting a coin, into it, a glass of cold drink was filled. The children satisfied their thirst and moved ahead.

- i. Identify the type of retail business as described in the above paragraph.
- ii. Quoting the relevant lines writing down three characteristics of the type of retail business identified in (i).
- iii. Tell the name of the Cold Drink Machine.

24. Liver Pharmaceutical Limited was set up about ten years ago in a hilly region. The company's business was to manufacture medicines. This company manufactured medicines related to particularly the diseases of the liver. At the time of setting up the factory, 50,000 'Equity shares of the Face Value of' 100 only were issued. With the setting up of this company, several people in the local area got employment. The medicines manufactured by the company were being supplied all over the country. Now, besides growth in the size of the company, there was also an increase in the capital need of the company. The company was, once again, preparing to seek the help of the public for arranging the capital. In this context, the Top Management held a meeting. In the meeting, it was decided that first of all, from the market survey, it should be ascertained in which particular security the investors are interested to invest their money. The report received after the market survey was that in those days people wanted to have their share in the ownership of the company and also they wanted that they should get their dividend at a fixed rate before the other shareholders. Besides, the

investors wanted that after a fixed period, their money invested by them should be refunded. The company decided to issue the shares in accordance with the report of Market Survey. Quoting the relevant line, explain what type of shares was decided by the company to be issued.

25. Explain four features of a wholesaler.

OR

Geeta Pustak Bhandar sells only religious books. But all kinds of books are available at 'Kapoor Pustak Bhandar'. Both of them are examples of Small Scale Retail Trade. Even then the nature of their trades is different from each other.

Identify the nature of the difference between the trades of both of them and explain it.

26. Explain the objectives of business briefly.

OR

Profit is not an objective but a requirement of the business. Do you agree with this statement? Support your answer with reasons.

27. Describe any two applications of E-business.

28. Fast Track Ltd. is a leading manufacturer of automobile spare parts. The Managing Director (MD) of the company is of the view that business is an economic institution, which exists with the basic objective of profit maximisation and assuming social responsibility is against this objective. However, one of the newly appointed manager tried to convince the MD in favour of social responsibility by highlighting the various factors which have forced and persuaded various companies to consider their social responsibilities. Discuss the factors which might have been highlighted by the manager to the MD.

29. Do you think small business units can survive in a competitive market? Explain any three factors which make way for the scope of small business enterprises.

30. Write a detailed note on features, structure, objectives and functioning of WTO.

OR

Identify and explain various organizations that have been set up in the country by the government for promoting country's foreign trade.

31. Define a sole proprietorship firm and explain its five features.

OR

Hemang has decided to promote an educational portal keeping in view the growing preference of students towards online education. He enters into a contract with an IT company for the purchase of ten computers to set up the business during the promotion of the company. However, after the incorporation, the company did not approve of it. On the contrary, the company signed a contract with another supplier.

In the context of the above case:

a. Identify the type of contracts being described above.

b. Distinguish between the two types of contracts as identified in part(a) of the question.

32. Explain the main services of commercial banks.

## ECONOMICS

Time-3:00 hours

MM-70

General Instructions:-

- 1) All questions are compulsory.
- 2) In this paper Q1 to Q9 and Q16 to Q24 Carrying '1' mark each.
- 3) Q10 & Q11 and Q.25 & Q26 are short answer type questions. Carrying '3' marks each.
- 4) Q12 & Q13 and Q.27 & Q28 are short answer type questions Carrying '4' marks each.
- 5) Q14 & Q15 and Q29 & Q30 are Long answer type questions Carrying '6' marks each.

### Micro Economics

(35 marks)

Q1 Central problems are found only in the developing economies like India and Bangladesh and not in developed countries like USA.( True or False)

Q2  $MU_x$  of X is 40 and  $MU_y$  of Y is 30. If the price of Y is rupees 9, then price of X at equilibrium will be \_\_\_\_\_.

- a) Rs 9.
- b) Rs 30
- c) Rs15.
- d) Rs 12

Q3 Read the following statements carefully and choose the correct alternative from the following :

**Statement 1** : Law of demand makes a qualitative statement and not quantitative.

**Statement 2** : No proportional relationship between change in price and the resultant change in demand is established by law of demand. a) Both the statements are true.

- b) Both the statements are false.
- c) Statement 1 is true and Statement 2 is false.
- d) Statement 2 is true and Statement 1 is false.

Q4 A firm is producing 20 units. At this level of output, ATC and AVC are respectively equal to Rs 40 and Rs 37. Find out the total fixed cost of the firm.

Q5 What happens to TR, when MR is positive?

- a) TR increases
- b) TR decreases
- c) TR is maximum
- d) TR remains same

Q6 For a firm to be in equilibrium, Marginal Revenue and Marginal cost must be \_\_\_\_\_ and beyond that level of output and marginal cost must be \_\_\_\_\_.

Q7 A cost saving technology shifts the supply curve of a commodity towards left.(True or False)

Q8 Read the following statements Assertion and Reason. Choose one the correct alternative given below :

**Assertion** : Under perfect competition each firm faces a perfectly elastic demand curve

**Reason** : Firm is a price maker in case of perfect competition.

- a) Both Assertion and Reason are true and Reason is correct explanation of Assertion.
- b) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion.
- c) Assertion is true but Reason is false.
- d) Assertion is false but Reason is true.

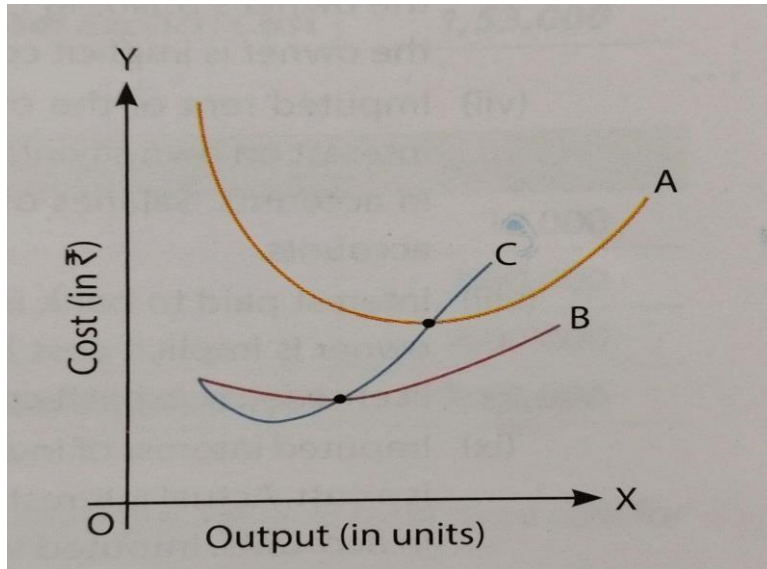
Q9 Price floor can also be described as :

- a) Minimum support price.
- b) Minimum price above the equilibrium price.
- c) Price at which quantity supplied exceeds the quantity demanded.
- d) All of the above.

Q10 Explain Highly elastic demand with the help of diagram.

Q11 In perfect competition 'Industry is price maker' and 'Firm is price taker' do you agree with this statement. Give reason for support of your answer.

Q12 On the basis of given diagram, answer the following questions :



- a) Identify the three short-run cost curves.
- b) Why all the three curves are U-shaped?
- c) Why does the distance between curve A and curve B fall with rise in output? Will they coincide at any level of output?
- d) Why does the minimum point of curve A lie to the right of minimum point of curve B?

Q13 The price elasticity of supply of commodity X is  $\frac{1}{2}$  of price elasticity of supply of commodity Y. When price of X falls by 50%, its supply falls by 20 units. Calculate price elasticity of supply of commodity X & Y, if 100 units of X were supplied at price of rupees 4 per unit.

Q14 Explain the law of variable proportion with the help of TPP and MPP. Show the relevant diagram with stages.

Q15 Market for a good is in equilibrium. There is simultaneous 'decrease' both in demand and supply of the good. Explain its effect on market price.

### Statistics

(35 marks)

Q16 \_\_\_\_\_ is that economic activity which studies how income generated is distributed among the factors of production.

Q17 **Assertion** : Primary data is original.

**Reason** : Primary data is collected by the investigator himself

- a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- b) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion
- c) Assertion is true and Reason is false.
- d) Assertion is false and Reason is true.

Q18 **Statement 1**: Statistics in plural sense is descriptive in nature.

**Statement 2**: A high degree of accuracy is not insisted upon in statistics as mass of data is involved.

- a) Both the statements are true
- b) both the statements are false
- c) Statement 1 is true and statement 2 is false
- d) Statement 2 is true and statement 1 is false

Q19 The column heading of a table is known as :

- a) Stubs.
- b) Subtitles
- c) Reference notes
- d) Captions

Q20 **Assertion** : Population of different states of India as per census 2011 is an example of temporal classification

**Reason** : In case of temporal classification data is classified with respect to different periods of time.

- a) Both Assertion and Reason are true and Reason is correct explanation of Assertion.
- b) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion.
- c) Assertion is true but Reason is false.
- d) Assertion is false but Reason is true.

Q21 The arithmetic mean of 1,4,5,7 and 8 will be \_\_\_\_\_.

Q22 Diagrammatic representation of data is done by :

- a) Pictures
- b) Charts
- c) Diagrams.
- d) All of these

Q23 Most frequent occurring value in a series is called :

- a) Mode.
- b) Median
- c) Mean.
- d) Quartiles

Q24 \_\_\_\_\_ is called a positional measure.

- a) Median
- b) Mode
- c) Mean
- d) None of these

Q25 Explain geographical and chronological classifications with examples.

Q26 Make a scatter diagram from the following data and interpret the result.

X : 4 5 6 7 8 9 10 11 12  
Y : 78 72 66 60 54 48 42 36 30

Q27 Tabulate the given information :

- In 2022 out of a total of 1500 applicants in a college, 900 were from commerce background. The number of girls was 600 out of which 230 were from science stream.
- In 2023 the total number of applicants was 2500 of which 1800 were boys. The number of students from science stream was 1600 of which 450 were girls.

Q28 The table given below shows the amount of sales of 100 companies, with the help of given information prepare less than and more than ogive curve.

Sales : 20-30 30-40 40-50 50-60 60-70 70-80  
Companies : 7 12 15 30 22 14

Q29 Calculate mode using 'Grouping' and 'Analysis' table.

Size : 8 9 10 11 12 13 14 15  
Frequency : 5 6 8 7 9 8 9 6

Q30 Calculate the price index number by :

- Laspeyre's method
- Paasche's method
- Fisher's method

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

## GEOGRAPHY

Time: 3 Hours

M.M.:60

General Instructions:

- This question paper contains 26 questions. All questions are compulsory.
- This Question Paper is divided into five sections -A, B, C, D and E.
- Section A- Question 1 to 14 are Multiple Choice Questions.
- Section B- Question Nos. 15 and 16 are Source Based Questions.
- Section C- Question 17 to 20 are Short Answer type questions. Answer to these questions shall be written in 80 to 100 words.
- Section D- Question 21 to 24 are Long Answer questions. Answer to these questions shall be written in 120 to 150 words.
- Section E- Question Nos. 25 & 26 are Map based questions.

Q 1. What causes rainfall on the coastal areas of Tamil Nadu in the beginning of winters?

- A. Southwest Monsoon
- B. North-Eastern Monsoon
- C. Temperate Cyclones
- D. Local Air Circulation

Q 2. Consider the following statement and choose the correct answer with the help of the given option :-

Statement I :- Western coastal plains are narrow belt

Statement II : It does not provides natural conditions for the development of ports and harbours

- A. Only statement I is true
- B. Only Statement II is true
- C. Both the statements are correct , and statement II correctly explains statement I
- D. Bot the statements are true but not related with each other

Q 3. Name the river which in Tibet is known as Langchen Khambab:

- A. Ravi
- B. Teesta
- C. Satluj
- D. Beas

Q 4. Consider the following statement and choose the correct answer with the help of given options :-

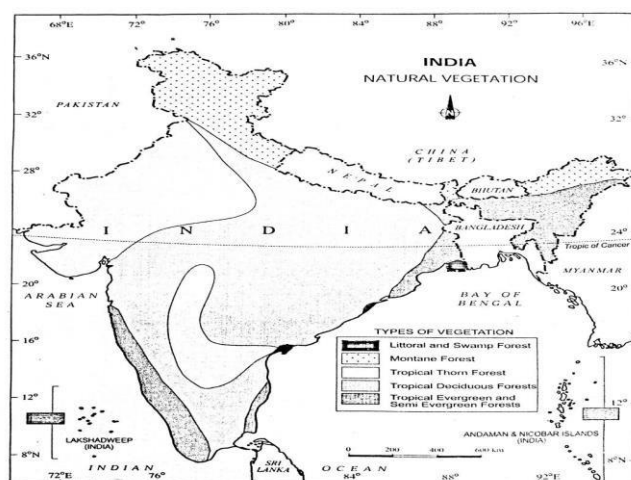
Statement I : The temperate forests are called Sholas in the Nilgiris, Anaimalai and Palani hills

Statement II : Khejri and Palas species are found in these forests.

Options :-

- A. Both the statements are true
- B. Only statement I is true
- C. Only statement II is true
- D. Both the statements are wrong

Q 5. Observe the following map and answer the following question.







Which of the following forests are most spread in India?

- A. Tropical Thorn forest
- B. Tropical Evergreen Forest
- C. Tropical deciduous forest
- D. Montane Forest

Q 6. Which of the following country is not included in Indian subcontinent ?

- A. Pakistan
- B. Nepal
- C. Bangladesh
- D. Maldives

Q 7. Given below is the list of earth quake types and their characteristics. Which of the following pair is correctly matched?

- A. Explosion : Earthquakes that occur in the areas of large reservoirs
- B. Collapse : Earthquakes occur due to intense mining activity
- C. Tectonic : Earthquakes confined to areas of extinct volcano
- D. Reservoir induced : Earthquakes occur due to explosion of chemical or nuclear devices

Q 8. Which of the following is not a part of hydrological cycle ?

- A. Evaporation
- B. Precipitation
- C. Condensation
- D. Hydration

Q 9. Which of the following Oceans have the highest Salinity ?

- A. Mediterranean Sea
- B. Dead Sea
- C. Red Sea
- D. Black Sea

Q 10. Which of the following ocean current is Cold Current ?

- A. Oyashio Current
- B. Brazilian Current
- C. Alaska Current
- D. Agulhas Current

Q 11. Read the following statement and answer the following questions :

“There is only one high tide and one low tide during each day. The successive high and low tides are approximately of the same height” Which of the following tide is related to above information?

- A. Mixed Tide
- B. Spring Tide
- C. Diurnal Tide
- D. Semi- Diurnal Tide

Read the following case study and answer the questions 12 to 14 :-

### Geomorphic Processes

The endogenic and exogenic forces causing physical stresses and chemical actions on earth materials and bringing about changes in the configuration of the surface of the earth are known as geomorphic processes. Diastrophism and volcanism are endogenic geomorphic processes. Weathering, mass wasting, erosion and deposition are exogenic geomorphic processes. Any exogenic element of nature (like water, ice, wind, etc.) capable of acquiring and transporting earth materials can be called a geomorphic agent. When these elements of nature become mobile due to gradients, they remove the materials and transport them over slopes and deposit them at lower level. A process is a force applied on earth materials affecting the same. An agent is a mobile medium (like running water, moving ice, wind, waves) which removes, transports and deposits earth materials.

Q 12. Which of the following is endogenic processes?

- A. Diastrophism and deposition
- B. Weathering and Volcanism
- C. Erosion
- D. Diastrophism

Q 13. The correct order from the following is :-

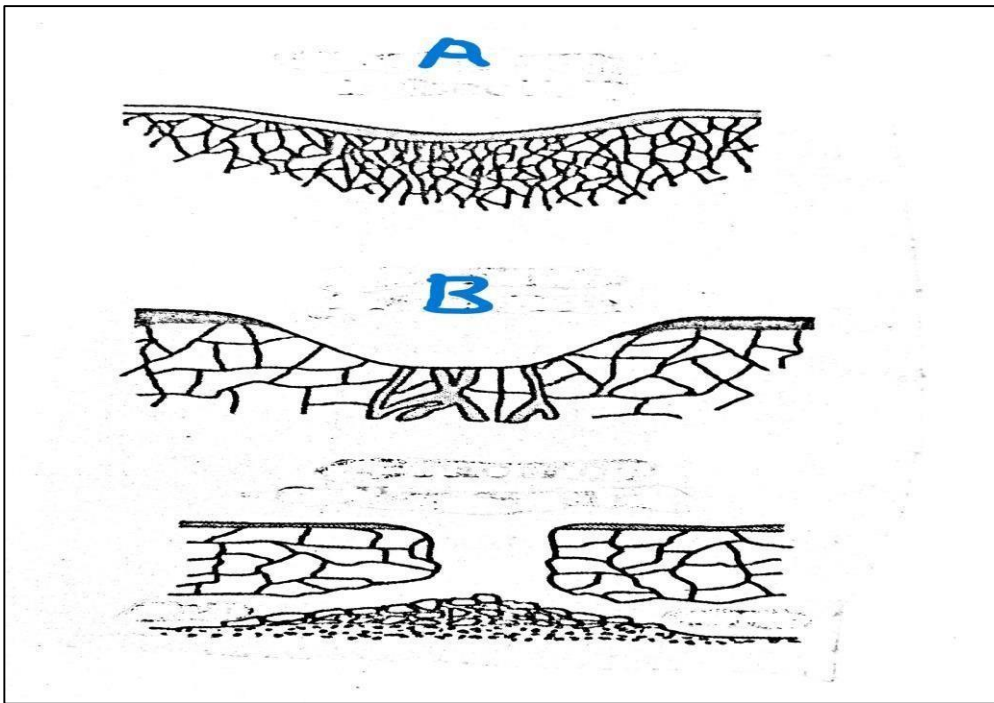
- A. Transportation, Erosion, Deposition
- B. Erosion, Transportation, Deposition
- C. Deposition, Transportation, Erosion
- D. Erosion, Deposition, Transportation

Q 14. Which of the following is not the Geomorphic agent ?

- A. Wind
- B. Running Water
- C. Erosion
- D. Waves

### SECTION- B

Q 15. Observe the given diagram and answer the following questions :



- Name the land forms marked as A and B
- In which areas the above mentioned landforms are found?
- By which exogenous process are the above mentioned landforms formed ?

Q 16. Read the following case study and answer the following questions :-

### The Peninsular Plateau

Rising from the height of 150 m above the river plains up to an elevation of 600-900 m is the irregular triangle known as the Peninsular plateau. Delhi ridge in the northwest, (extension of Aravalis), the Rajmahal hills in the east, Gir range in the west and the Cardamom hills in the south constitute the outer extent of the Peninsular plateau. However, an extension of this is also seen in the northeast, in the form of Shillong and Karbi-Anglong plateau. The Peninsular India is made up of a series of patland plateaus such as the Hazaribagh plateau, the Palamu plateau, the Ranchi plateau, the Malwa plateau, the Coimbatore plateau and the Karnataka plateau, etc. This is one of the oldest and the most stable landmass of India. The general elevation of the plateau is from the west to the east, which is also proved by the pattern of the flow of rivers. Name some rivers of the Peninsular plateau which have their confluence in the Bay of Bengal and the Arabian sea and mention some landforms which are typical to the east flowing rivers but are absent in the west flowing rivers. Some of the important physiographic features of this region are tors, block mountains, rift valleys, spurs, bare rocky structures, series of hummocky hills and wall-like quartzite dykes offering natural sites for water storage. The western and northwestern part of the plateau has an emphatic presence of black soil. This Peninsular plateau has undergone recurrent phases of upliftment and submergence accompanied by crustal faulting and fractures. (The Bhima fault needs special mention, because of its recurrent seismic activities). These spatial variations have brought in elements of diversity in the relief of the Peninsular plateau. The northwestern part of the plateau has a

complex relief of ravines and gorges. The ravines of Chambal, Bhind and Morena are some of the well known examples.

- A. Explain the extent of the Peninsular Plateau.
- B. The peninsular India is made up of a series of Patland Plateaus. Justify.
- C. There are many landforms found in Peninsular Plateau. State any two examples.

#### SECTION - C

Q 17. " Ocean seems to be water body but it has many types of landforms within it. "Justify the statement by giving some examples.

Q 18. What is inversion of temperature? When and in what regions does it take place?

OR

How does the amount of insolation received depends upon on the angle of inclination of the sun rays?

Q 19. "Forests and tribals are very closely related." Justify the statement.

OR

When was Comprehensive Wildlife Act enacted and what are its objectives?

Q 20. Explain the Spatial variations in the rainfall throughout India.

#### SECTION - D

Q 21. How does condensation take place? What are the different forms of condensation?

Q 22. Explain the structure of Atmosphere.

OR

The temperature of air at any place is influenced by many factors. Justify the statement

Q 23. What is Social Forestry? Explain the three categories of Social Forestry.

OR

Describe any five characteristics of Tropical Deciduous forest.

Q 24. How does monsoon affect economic life in India? Elucidate.

#### SECTION - E

Q 25. On the outline Physical map of the world, locate and label the following features (Do any four)

- (i) Bay of Fundy
- (ii) Humboldt Cold ocean current
- (iii) Sahara desert
- (iv) Mediterranean sea

- (v) Kuroshio Warm ocean current
- (vi) Nazca Plate

Q 26. Locate and label the following on the given physical outline map of India with appropriate symbols. (Any four)

- A. Area with Highest rainfall in India
- B. Konkan Coast
- C. Dachigam Wild Life Sanctuary
- D. Palk Strait
- E. River Chambal Kolleru Lake

## **HISTORY**

**Time: 3 Hrs**

**SECTION -A**

**MM-70**

**McQ 1×21=21**

**Q1.** Identify the name of emperor with the help of the following information:

He collected a library at his capital, Nineveh in the north.  
He sent his scribes south to find old tablets.  
He declared himself as a king of the universe.

- a) Nabonidus.    b) Sargon.    c) Assurbanipal.    d) Enmerkar

**Q 2.** War captives and local people who were put to work for the temple or for the ruler were paid

- a) Bronze tools.    b) Cattle's.    c) coins.    d) Ration

**Q 3.** Given below are two statements, one labeled as Assertion (A) and the other labeled as Reason (R)

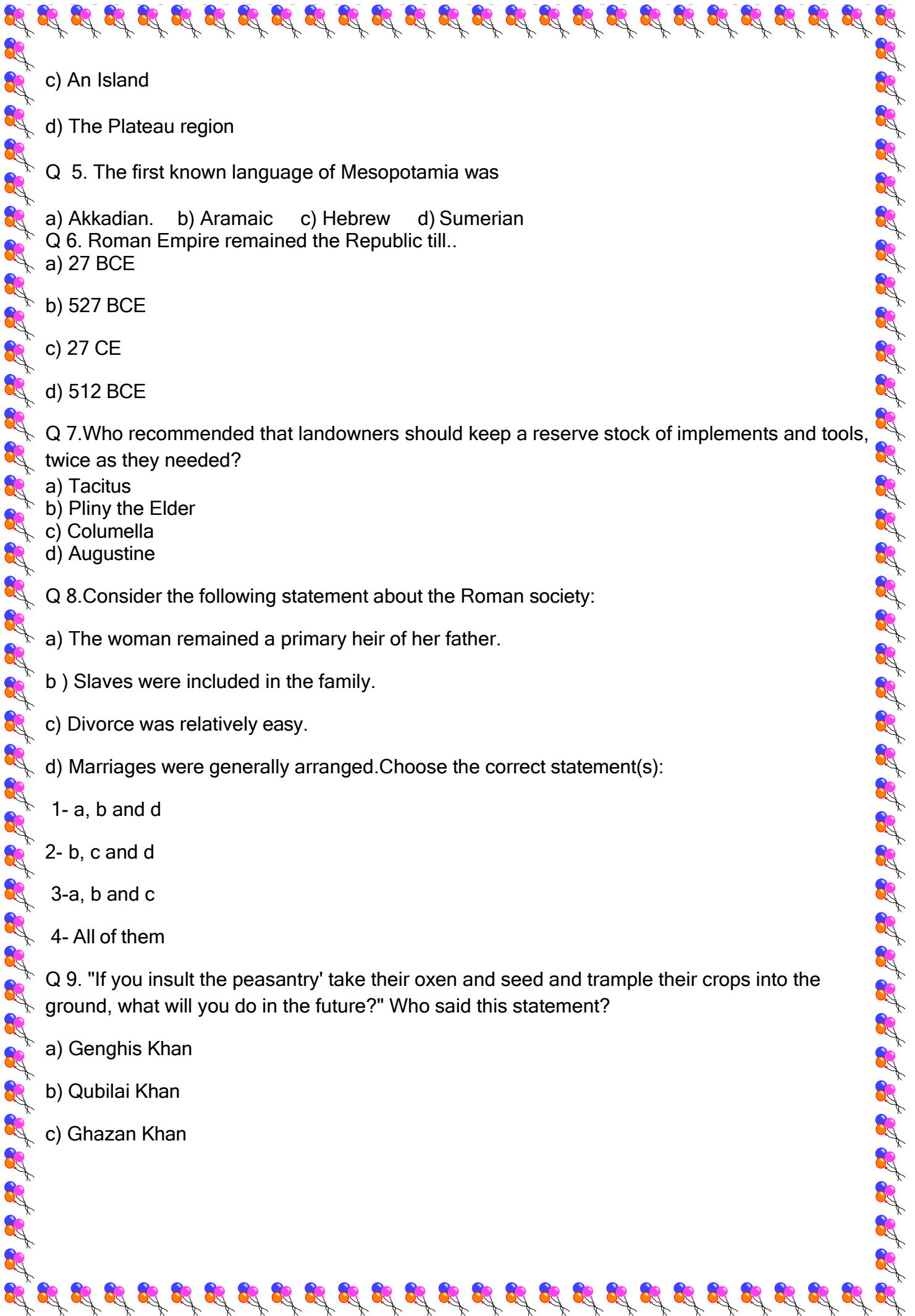
.Assertion (A)- The greatest legacy of Mesopotamia to the world is its scholarly tradition of time reckoning and mathematics. Reason

(R)- The division of the year into 12 months according to the revolution of the earth around the sun.

- a) Both A and R are true, but R is not the correct explanation of A.
- b) Both A and R are true, and R is the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true

**Q.4.** What is the meaning of "Mesos" ?

- a) The Highland
- b) The Mid Land



c) An Island

d) The Plateau region

Q 5. The first known language of Mesopotamia was

a) Akkadian. b) Aramaic c) Hebrew d) Sumerian

Q 6. Roman Empire remained the Republic till..

a) 27 BCE

b) 527 BCE

c) 27 CE

d) 512 BCE

Q 7. Who recommended that landowners should keep a reserve stock of implements and tools, twice as they needed?

a) Tacitus

b) Pliny the Elder

c) Columella

d) Augustine

Q 8. Consider the following statement about the Roman society:

a) The woman remained a primary heir of her father.

b) Slaves were included in the family.

c) Divorce was relatively easy.

d) Marriages were generally arranged. Choose the correct statement(s):

1- a, b and d

2- b, c and d

3- a, b and c

4- All of them

Q 9. "If you insult the peasantry' take their oxen and seed and trample their crops into the ground, what will you do in the future?" Who said this statement?

a) Genghis Khan

b) Qubilai Khan

c) Ghazan Khan

d) Chaghatai khan.

Q 10.The Mongol Empire was founded by:

a) Genghis Khan

b) Alexander the Great

c) Julius Caesar

d) Attila the Hun

Q 11.Consider the following statements in respect of knight. Which of the following is not correct?

a) The lord gave the knight a piece of land (fief) and promised to protect it.

b) The fief could not be inherited.

c) in exchange, the knight paid his lord a regular fee and promised to fight for him in war.

d) A knight might serve more than one lord, but his foremost loyalty was to his own lord.

Q 12.Construction of Cathedral town attributed to

a) Higher yield in agricultural production.

b) Promotion of trade and industry

c) Business promotion drive under the shade of religion

d) The contribution and subscription by craftsmen, artisans, merchants and common people.

Q 13. Given below are two statements, one labeled as Assertion (A) and the other labeled as Reason (R)- Law was a popular subject of study in the earliest universities of Italy.

Reason (R)- There was an increasing demand for teachers and doctors.

i) Both A and R are true, and R is the correct explanation of A.

ii) Both A and R are true, but R is not the correct explanation of A.

iii) A is true but R is false.

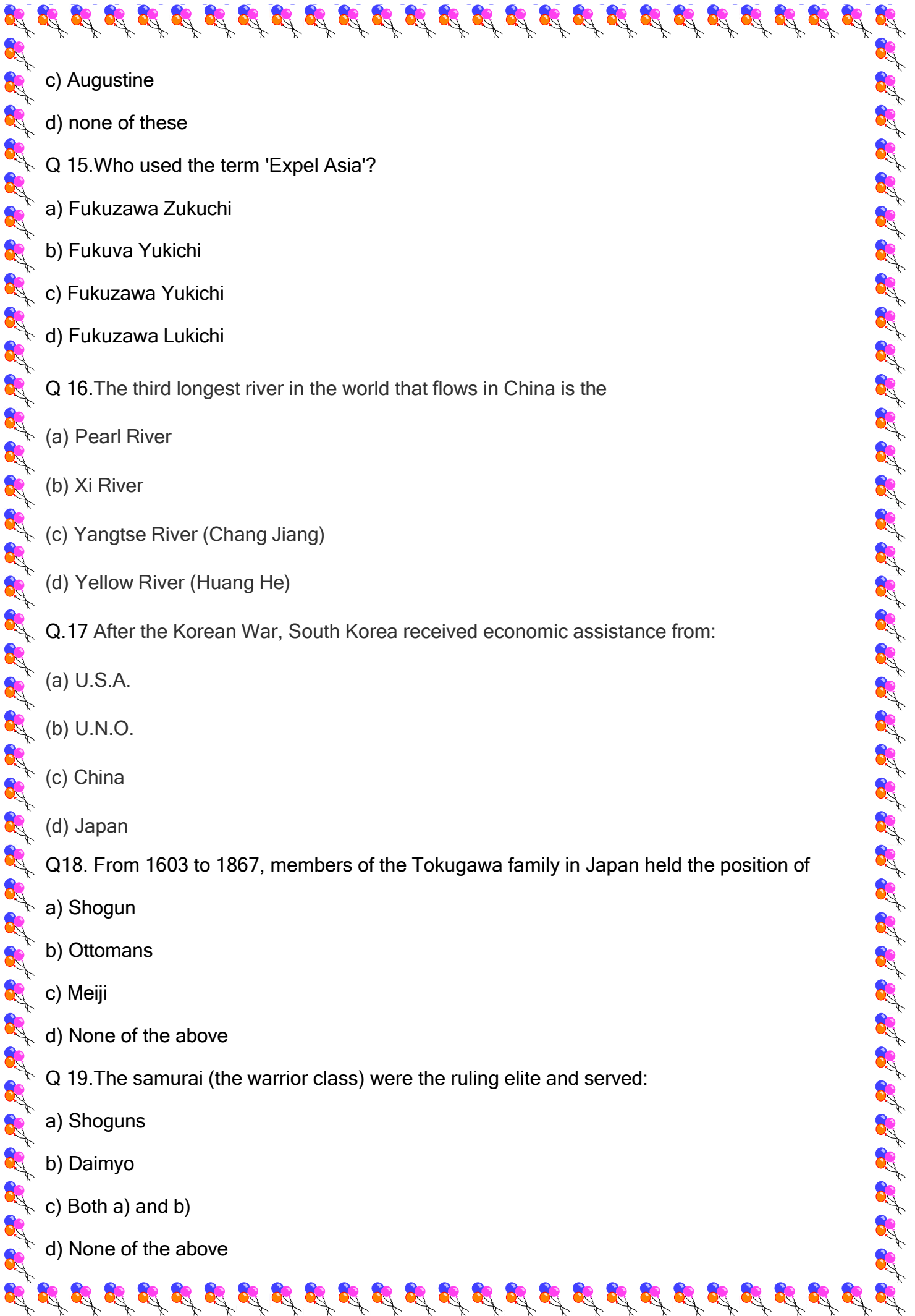
iv) A is false but R is true

Q 14.Identify the given picture from the options given below:



a) Genghis Khan

b) cabala khan



c) Augustine

d) none of these

Q 15. Who used the term 'Expel Asia'?

a) Fukuzawa Zukuchi

b) Fukuva Yukichi

c) Fukuzawa Yukichi

d) Fukuzawa Lukichi

Q 16. The third longest river in the world that flows in China is the

(a) Pearl River

(b) Xi River

(c) Yangtse River (Chang Jiang)

(d) Yellow River (Huang He)

Q. 17 After the Korean War, South Korea received economic assistance from:

(a) U.S.A.

(b) U.N.O.

(c) China

(d) Japan

Q18. From 1603 to 1867, members of the Tokugawa family in Japan held the position of

a) Shogun

b) Ottomans

c) Meiji

d) None of the above

Q 19. The samurai (the warrior class) were the ruling elite and served:

a) Shoguns

b) Daimyo

c) Both a) and b)

d) None of the above



Q 20. In Arabic, the person who was known as 'Aflatoon' was

- a) Plato.
- b) Aristotle.
- c) Dante.
- d) Caesar.

Q 21. The painting 'Mona Lisa' was made by

- a) Leonardo da Vinci.
- b) Michelangelo.
- c) Raphael.
- d) Donatello.

**SECTION-B**

**Short questions 3x6=18**

Q 22. Agriculture in South Mesopotamia was sometimes subject to hazards. Which factors were responsible for it? Explain.

Q 23. How was the third century crisis different than the first and second centuries a period of peace?

Q 24. What were the military achievements of Genghis Khan?

Q 25. Why would Copernicus have kept as a secret his life-long, the theory telling the true position of the earth?

Q 26. Write a brief note on Fukuzawa Yukichi?

Q 27. Briefly explain the topography of China.

**SECTION-C**

**Long Question 8x3=24**

Q 28. Who was Genghis Khan? How did he become the Great Khan of the Mongols?

OR

Why were there often clashes between the animal herders and farmers of the Middle East?

Q 29. Explain the role of Gold Rush in economic and political expansion of America.

OR

Discuss the political changes which occurred during 15th and 16th centuries in Europe.

## SECTION - D

Case based 4×3=12

**Q 31.** In India, early stone seals were stamped. In Mesopotamia until the end of the first millennium BCE, cylindrical stone seals, pierced down the Centre, were fitted with a stick and rolled over wet clay so that a continuous picture was created. They were carved by very skilled craftsmen, and sometimes carry writing: the name of the owner, his god, his official position, etc. A seal could be rolled on clay covering the string knot of a cloth package or the mouth a pot, keeping the contents safe. When rolled on a letter written on a clay tablet, it became a mark of authenticity. So the seal was the mark of a city dweller's role in public life.

Question: (i) Who carved the seals during Mesopotamian civilization?

(ii) What do you see on each of the seals?

(iii) What do the inscribed sign describe?

**Q 32.** In Benedictine monasteries, there was a manuscript with 73 chapters of rules which were followed by monks for many centuries. Here are some of the rules they had to follow:

Chapter-6: Permission to speak should rarely be granted to monks.

Chapter 7: Humility means obedience.

Chapter 33: No monk should own private property.

Chapter 47: Idleness is the enemy of the soul, so friars and sisters should be occupied at certain times in manual labour, and at fixed hours in sacred reading Chapter-48: The monastery should be laid out in such a way that all necessities be found within its bounds: water, mill, garden, workshops.

Questions: 1. What does humility' mean?

(ii) What does chapter 47 say?

(iii) What sort of values are reflected in this chapter?

**Q 33.** William Tyndall (1494-1536), an English Lutheran who translated the Bible into English in 1506, defended Protestantism thus: 'In this they be all agreed, to drive you from the knowledge of the scripture, and that ye shall not have the text thereof in the mother tongue, and to keep the world still in darkness, to the intent they might sit in the consciences of the people, through vain superstition and false doctrine, to satisfy their proud ambition, and insatiable covetousness, and to exalt their own honour above king and emperor, yea, and above God himself... Which thing only moved me to translate the New Testament. Because I had perceived by experience, how that it was impossible to establish the lay-people in any truth, except the scripture were plainly laid before their eyes in their mother tongue, that they might see the process, order, and meaning of the text.

Questions:

(i) What do you know about William Tyndall?

(ii) What were his objectives to translate the Bible into English?

(iii) What were the issues on which the Protestants criticized the Catholic Church?

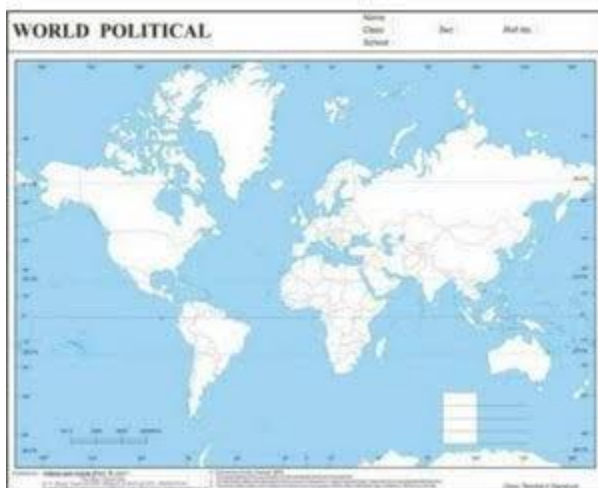
Write any two issues.

### SECTION-E

### Map work 5

34. The area from where Aboriginal people came to Australia via a land bridge.

- . Mediterranean Sea.
- . Gaul: a province of the Roman empire.
- . Wine came from which place in Rome.
- . Identify the place of Tigris and Euraphtes.
- . Yellow river found in which country .



### POLITICAL SCIENCE

**TIME: 3Hrs.**

**M.M-70**

General Instructions:

1. This question paper contains 28 questions. All questions are compulsory.
2. Question paper is divided into five sections A, B, C, D and E.
3. Section A questions number 1 to 12 are Multiple Choice type questions. Each question carries 1 mark
4. Section B questions number 13 to 18 are Short Answer type questions. Each question carries 2 marks. Write answer to each question in 50 to 60 words.
5. Section C questions number 19 to 24 are Long Answer Type question. Each question carries 4 marks. Write answer to each question in 100 to 120 words.

6. Section D questions number 25 to 26 are Passage and Cartoon questions. Answer each question accordingly.

7. Section E questions number 27 to 28 are Long Answer type-II questions. Each question carries 6 marks. Write answer to each question in 170 to 180 words.

### SECTION A

Q1. Which among the following is known as a “country of immigrant”?

- a) France
- b) Japan
- c) USA
- d) Iran

Q2. In which year was the national policy for Urban Street vendors adopted in India?

- a) 2004
- b) 2005
- c) 2006
- d) 2008

Q3. Who among the following thinkers lived and worked for the realisation of the ideal of Universal men?

- a) B.R Ambedkar
- b) J.L Nehru
- c) Rabindranath Tagore
- d) Ram Manohar Lohiya

Q4. The solution to dealing with movements for self-determination is:

- (a) Creating new states for each cultural group
- (b) Ignoring the demands of cultural minorities
- (c) Making existing states more democratic and equal
- (d) Promoting global integration.

Q5. According to T.H. Marshall, what are the three kinds of rights involved in citizenship? [1]

- (a) Civil, economic, and cultural rights
- (b) Civil, political, and social rights
- (c) Economic, social, and cultural rights
- (d) Political, economic, and cultural rights.

Q6. How did the Indian Constitution attempt to accommodate the diverse society of India?

- (a) By promoting a single dominant culture.
- (b) By providing equal rights to all citizens without forcing them to give up personal beliefs.
- (c) By excluding certain communities from citizenship.
- (d) By favoring specific religious or linguistic groups.

**In the following question (Q7-Q8) a statement of Assertion (A) is followed by a statement of Reason (R). Choose the appropriate option as answer:**

Q7. Assertion (A): The Indian Constitution attempted to accommodate a very diverse society.

Reason (R): It attempted to provide full and equal citizenship to groups as different as the Scheduled Castes and Scheduled Tribes, many women who had not previously enjoyed equal rights, some remote communities in the Andaman and Nicobar Islands who had little contact with modern civilization, and many others.

- (a) Both (A) and (R) are correct, and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are correct, but (R) is not the correct explanation of (A).
- (c) (A) is incorrect, hut (R) is correct.
- (d) (A) is correct, but (R) is incorrect.

Q8. Assertion (A): A democratic government is considered to be an important means of protecting the freedom of people.

Reason (R): If the government is a democratic one, the members of a state could retain some control over their rulers.

- (a) Both the Assertion and the Reason are correct, and the Reason is the correct explanation of the Assertion.
- (b) Both the Assertion and the Reason are correct, but the Reason is not the correct explanation of the Assertion.
- (c) The Assertion is incorrect, but the Reason is correct.
- (d) The Assertion is correct, but the Reason is incorrect.

Q9. In the example of playing loud music in an apartment building, what does Mill recommend as an appropriate response from other residents? [1]

- (a) Involving the police and legal punishment
- (b) Social disapproval and refusing to greet the person playing loud music
- (c) Ignoring the inconvenience caused by loud music
- (d) Requesting the government to enforce stricter noise regulations



Q10. Who preside over the joint sitting of both the house of parliament?

- (a) The Prime minister
- (b) The President
- (c) The Chairman of Rajya Sabha
- (d) The speaker of Lok Sabha

Q11. .... can be understood to mean both the rule of the self and rule over self.

- (a) Swaraj
- (b) individualism
- (c) Equality
- (b) Ahimsa

Q12. Which bill cannot be introduced in Rajya Sabha?

- (a) Money bill
- (b) Welfare bill
- (c) Citizenship bill
- (d) Reservation bill

### SECTION B

Q13. Explain the three-tier structure of Panchayati Raj.

Q14. Write any two federal features of India.

Q15. India has a single integrated judiciary. Explain.

Q16. Why did India adopt the Parliamentary system of government?

Q17. Mention any two special powers of Rajya Sabha.

Q18. Why do we need a parliament?

### SECTION C

Q19. What is the necessity of constitution?

Q20. How Indian secularism is different from western secularism?

Q21. Enlist the powers and functions of election commission.

Q22. Describe the main function of modern legislature.

Q23. Write down any four discretionary powers of President of India.

Q24. What are the advantages of Unicameral Legislature

### SECTION D

Q25. Read the passage given below carefully and answer the questions that follows:

People who see themselves as a nation also embody a sense of continuing historical identity. That is, nations perceive themselves as stretching back into the past as well as reaching into the future. They articulate for themselves a sense of their own history by drawing on collective memories, legends, historical records, to outline the continuing identity of the nation. Thus nationalists in India invoked its ancient civilization and cultural heritage and other achievements to claim that India has had a long and continuing history as a civilization and that this civilisational continuity and unity is the basis of the Indian nation. Jawaharlal Nehru, for instance, wrote in his book *The Discovery of India*, "Though outwardly there was diversity and infinite variety among the people, everywhere there was that tremendous impress of oneness, which held all of us together in ages past, whatever political fate or misfortune had befallen us".

Questions:

1. How do people articulate a sense of their own history? (2)
2. What is known as the basis of unity of India? (2)
3. Who wrote 'Discovery of India'? (1)

Q26. Read the cartoon given below and answer the questions that follow (2+1+1+1)



1. The Netaji is afraid of EC. Why do leaders fear the Election Commission?
2. Is this good for democracy?
3. What is meant by Universal Adult franchise?
4. Write down the tenure of Lok Sabha.

### SECTION E

Q27. What rights do citizen enjoy in a democratic state? What are their main duties?

OR

Write down the virtues and limitations of nationalism.

Q28. Write down the powers and function of the Indian president.

OR

Explain the law-making procedure in the Indian Parliament.

### PSYCHOLOGY

TIME: 3Hrs.

M.M-70

#### General Instructions:

All questions are compulsory, except where internal choice has been given

- Question no. 1-13 in section A carry 1 mark each.



- Question no. 14 to 18 in section B are very short answer type-I questions carrying 2 marks each answer should not exceed 30 words.
- Question no. 19-21 in Section C are short answer. Type -II questions carrying three 3 marks each. Answers to each question should not exceed 60 words.
- Question no. 22-25 in section D are long answer type-I carrying 4 marks each. Answer to each question should not exceed 120 words.
- Question no. 26 and 27 in section E are long answer type -II carrying six marks each. Answer to each question should not exceed 200 words.

### SECTION A

Q1. The process by which an individual grows and changes throughout the lifecycle is-

- a) Growth                      b) Evolution                      c) Development                      d) None

Q2. Pratibha was given a list of words to learn by her teacher and asked to recall them in the same order as it was presented to her. What is this method of verbal learning called?

- a) Serial recall                      b) Paired associate                      c) Free recall                      d) None

Q3. Which of the following is an example of declarative memory?

- a) Riding a bicycle                      b) Remembering your friend's birthday  
c) Typing on a keyboard                      d) Tying shoelaces

Q4- The concept of working memory was proposed by-

- a) Terman                      b) Baddeley                      c) Tolman                      d) Piaget

Q5 Assertion (A) : If a rat is allowed to run in a maze for some time without food, it will be able to reach a goal in that maze on a later occasion quicker than a novice rat.

Reason (R) : The rat develops a kind of cognitive map of the maze while running inside it without food.

- A. Both A and R are true and R is the correct explanation of A  
B. Both A and R are true but R is NOT the correct explanation of A  
C. A is true but R is false  
D. A is false but R is true

Q6. Which type of memory stores information temporarily and has a very limited capacity?

- a) Sensory memory                      b) Long term memory                      c) Short-term memory                      d) Procedural memory

Q7. According to Maslow's hierarchy of needs, which need is at the highest level?

- a) Safety need                      b) Esteem needs                      c) Self-actualization                      d) Physiological need

Q8. Which technique is most effective for improving memory retention?

Q9. What does the term "retrieval cue" refer to?

- a) A stimulus that helps recall information
- b) A process of forgetting irrelevant information
- c) The act of transferring memories to short-term storage
- d) A memory-enhancing technique

Q10. Which term refers to the sudden realization of a solution to a problem?

- a) Heuristic
- b) Insight
- c) Trial and error
- d) Algorithm

Q11. Which stage of development is characterized by rapid physical growth and identity formation?

- a) Infancy
- b) Childhood
- c) Adolescence
- d) Adulthood

Q12. The "Bobo Doll Experiment" demonstrated which type of learning?

- a) Classical conditioning
- b) Operant conditioning
- c) Observational learning
- d) Latent learning

Q13. According to Jean Piaget, which stage of cognitive development involves abstract thinking?

- a) Sensorimotor
- b) Preoperational
- c) Concrete operational
- d) Formal operational

### SECTION B

Q14. Mastery of developmental tasks is important for effective and normal development. Explain.

Q15. Write down the two factors of sustained attention.

Q16. Differentiate between episodic and semantic memory?

OR

How are main rehearsals different from elaborative rehearsal?

Q17. Explain the motivational cycle.

Q18. Julie was 7 years old when she came to special educator. She had difficulties in reading, writing and mathematics and all these skills are not up to her age. Also detailed speech evaluation revealed speech sound disorder which is in-turn leading to poor clarity of speech. Identify the disability and discuss the symptoms presented by Julie.



**SECTION C**

Q19. Discuss Encoding, Storage and Retrieval.

OR

Explain the Atkinson-Shiffrin model of memory.

Q20. Explain the basic characteristics of language in detail.

Q21. Explain Pavlov's experiment on classical conditioning

**SECTION-D**

Q22. Explain the procedures for studying verbal learning.

OR

When chimpanzees are observed in the jungle, without any attempt to influence or control their behavior, which method of psychological enquiry is involved? Write one merit and demerit each of this method.

Q23. Discuss the process of creative thinking. Explain any two strategies used in creative thinking.

Q24. Raghav is a student of Class 12. He adopts the method of PQRS for his preparation. Explain the method in detail.

Q25. How do the need for achievement affiliation & power influence the behaviour of adolescents? Explain with examples.

**SECTION-E**

Q26. Discuss the cognitive development of children in Piaget's theory.

OR

Differentiate between growth development and maturation. Also explain Bronfenbrenner model of development.

Q27. What is PTSD? Explain any three ways of managing negative emotions.

OR

What is examination anxiety? Mention the strategies to curb this anxiety and help students to enhance their performance.

## COMPUTER SCIENCE

### General Instructions

1. This question paper has 7 pages.
2. This question paper contains five sections, Section A to E.
3. All questions are compulsory.
4. Section A has 18 questions carrying 01 mark each.
5. Section B has 07 Very Short Answer questions carrying 02 marks each.
6. Section C has 05 Short Answer type questions carrying 03 marks each.
7. Section D has 03 Long Answer type questions carrying 05 marks each.
8. Section E has 02 questions carrying 04 marks each.
9. All programming questions are to be answered in Python Language only.

### SECTION-A

1. Which among the following will print India 10 times? a) `print("India"*10)`      b) `print("India"**10)`      1  
c) `print(India *10)`      d) `print(India+10)`
2. What will be the output of the following code segment?      1  
a, b=5, 6  
b, a=a, b  
`print(a, "+", b)`  
a) 5 + 6      b) 6 + 5  
c) 11      d) None
3. Kriza wants to divide a number and store the result without decimal places into an integer variable. Suggest her an appropriate operator from the following:      1  
a) /      b) //  
c) %      d) Both a and b
4. What will be the output of following code: if True:      1  
    `print("true")`  
else:  
    `print("false")`  
a) True      b) False  
c) true      d) false
5. Observe the given code and select an appropriate output:      1  
`a="hello" b=str(30) print(a+b)`  
a) h      b) hello  
c) 30      d) hello30
6. Rudra wants to access a second last list element of list object L. Help him to select an appropriate option to accomplish his task.      1  
a) `L[2]`      b) `L[-2]`  
c) `L[len(L)-2]`      d) `L-2`
7. Consider these statements:      1  
`a=56,78,32,12`  
`print(type(a))`
8. What will be the output?      1  
a) `<class „int“>`      b) `<class „tuple“>`  
c) `<class „list“>`      d) `<class „str“>`

8 Observe the given declarations: 1

- i. `d={}`
- ii. `d=dict()`
- iii. `d=Dict()`
- iv. `d=dict.fromkeys()`

Which of the following are correct ways to create an empty dictionary?

- a) i and ii
- b) i,ii and iv
- c) i,iii and iv
- d) i and iii

9 Jay forgot to sign off from his email account on his laptop. Later, his classmate Rishi started using the same computer. 1

He is now logged in as Jay. He sends inflammatory email messages to few of his classmates using Jay's email account. Rishi's activity is an example of which of the following cybercrime? Justify your answer.

- a) Hacking
- b) Identity theft
- c) Cyber bullying
- d) Plagiarism

10 Which act protects against cybercrime in India? 1

- a) Indian IT Act
- b) India Computer Security Act
- c) Indian Cyber Law
- d) Indian Data Security Law

11 Accessing of data in a dictionary is done through : 1

- (a) Index
- (b) value
- (c) key
- (d) cell number

12 Which among the following is the default mode when you open python interpreter? 1

- a) Shell
- b) Script
- c) Window
- d) Interactive

13 Which of the following is not a keyword in Python language? 1

- (a) for
- (b) if
- (c) try
- (d) sum

14 Which of the following is an invalid statement? 1

- (a) `a,b,c = 1000`
- (b) `a,b,c = 1000 2000 3000`
- (c) `a,b,c = 1000, 2000, 3000`
- (d) `a_b_c = 1000`

15 Which of the following is the same as `math.exp(p)`? Also give the explanation. 1

- a) `e ** p`
- b) `math.e ** p`
- c) `p ** e`
- d) `p ** math.e`

16 Which is the correct command to load just the `tempc` method from a module called `usable`? 1

- (a) `import usable, tempc`
- (b) `Import tempc from usable`
- (c) `from usable import tempc`
- (d) `import tempc`

17 and 18 are ASSERTION AND REASONING based questions. Mark and write down the correct choice as

- (A) Both (A) and (R) are true and (R) is the correct explanation (A)
- (B) Both (A) and (R) are true and R is not the correct explanation (A)
- (C) (A) is True but (R) is False
- (D) (A) is false but (R) is True

- 17 Choose correct option: 1  
D1= {"A": "CS", "B": "IP"}  
D2= {"B": "IP", "A": "CS"}  
Assertion: Output of print (D1==D2) is True.  
Reasoning: Dictionary is a collection of key-value pairs. It is not a sequence.
- 18 Choose correct option: 1  
S1="python"  
S1[0]=S1[0].upper()  
Assertion: Above code will generate error.  
Reasoning: String is mutable by nature.

### SECTION-B

- 19 Write a python program to calculate the square root of given number n. 2
- 20 How many times will the following for loops execute and what's the output of this program? 2  
for i in range(-1,-7,-2):  
for j in range(3):  
print(1, j)
- 21 What do you mean by IPR? 2
- 22 Differentiate between phishing and pharming. 2
- 23 What will be stored in variables a, b, c, d, e, f, g, h after following statements? 2  
perc = (88, 85, 80, 88, 83, 86)  
a = perc[2:2]  
b = perc[2:]
- 24 Find the output of the following code:- 2  
dictlang = {'c#': 6, 'GO': 89, 'Python':4, 'Rust':10}  
cpydict = dictlang.copy()  
print(cpydict)
- 25 As a citizen of India, what advice would you give to others regarding ewaste management? 2

### SECTION-C

- 26 Find output of the following given two tuples: 3  
>>> t1 = (1,3,5)  
>>> t2 = (2,4,6,8,10)  
a)t1+t2  
b) t1\*3  
c) 11 in t1
- 27 Rewrite the following code in Python after removing all syntax error(s). 3  
30 = To  
for K in range(0, To)If K%4 == 0:  
Print(K\*4)Else:  
Print(K + 3)

## INFORMATICS PRACTICES

### General Instructions

1. This question paper has 6 pages.
2. This question paper contains five sections, Section A to E.
3. All questions are compulsory.
4. Section A has 18 questions carrying 01 mark each.
5. Section B has 07 Very Short Answer questions carrying 02 marks each.
6. Section C has 05 Short Answer type questions carrying 03 marks each.
7. Section D has 03 Long Answer type questions carrying 05 marks each.
8. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
9. All programming questions are to be answered in Python Language only.

### Section -A

- 1 A computer along with hardware and software together is called
  - a) Hardware Unit
  - b) Software Unit
  - c) Computer System
  - d) Input Unit
- 2 1 ZB =
  - a) 1024 MB
  - b) 1024 GB
  - c) 1024 PB
  - d) 1024 EB
- 3 The process of Fetching or retrieving deleted or corrupted and lost data from secondary storage is known as –
  - a) Data Recovery
  - b) Data Backup
  - c) Restoring Data
  - d) Data Deletion
- 4 Which of the following acts as an interface between the device and operating systems?
  - a) Language Processor
  - b) Device Driver
  - c) Antivirus Software
  - d) Operating System

5 Ansh is working in python interactive mode. He noticed this symbol - >>> but forgot what it is called? Select an appropriate option for him out of these?

- a) Python Shell
- b) Python Script
- c) Python prompt
- d) Python Interpreter

6 Which of the following is a python built-in editor popularly used to write scripts?

- a) Jupyter Notebook
- b) PyCharm IDE
- c) Spyder IDE
- d) CPython IDLE

7 Which of the following statement is not correct about python keywords?

- a) Keywords defined by user
- b) Keywords cannot be used as an identifier
- c) Keywords convey a special meaning to python interpreter
- d) Keywords are case-sensitive

8 Which of the following statement is used to iterate over a range of values or sequence?

- a) if
- b) if-else
- c) if-elif-else
- d) for

9 Which of the following is invalid method for lists?

- a) list()
- b) append()
- c) setdefault()
- d) extend()

10 Which following methods are correct to add element into the dictionary object d?  
d={1:"Virat",2:"Rahul",3:"Surya"}

- a) d[4]="Hardik"





b) `d.setdefault(4, "Hardik")`

c) Both a) and b)

d) None of these

11 Which of the following is not RDBMS software?

a) Oracle

b) MS Excel

c) MySQL

d) MS Access

12 The design of data is known as

a) Database Schema

b) Data Constraint

c) Data Dictionary

d) Database Instance

13 The SQL statements ends with

a) ,      b) :      c) ;      d) “

14 Shiv wants to see the table structure in MySQL. Select an appropriate command to help him.

a) use

b) show

c) desc

d) display

15 Sahil wants to delete a primary key constraint from the table. Select an appropriate command which help him.

a) Create

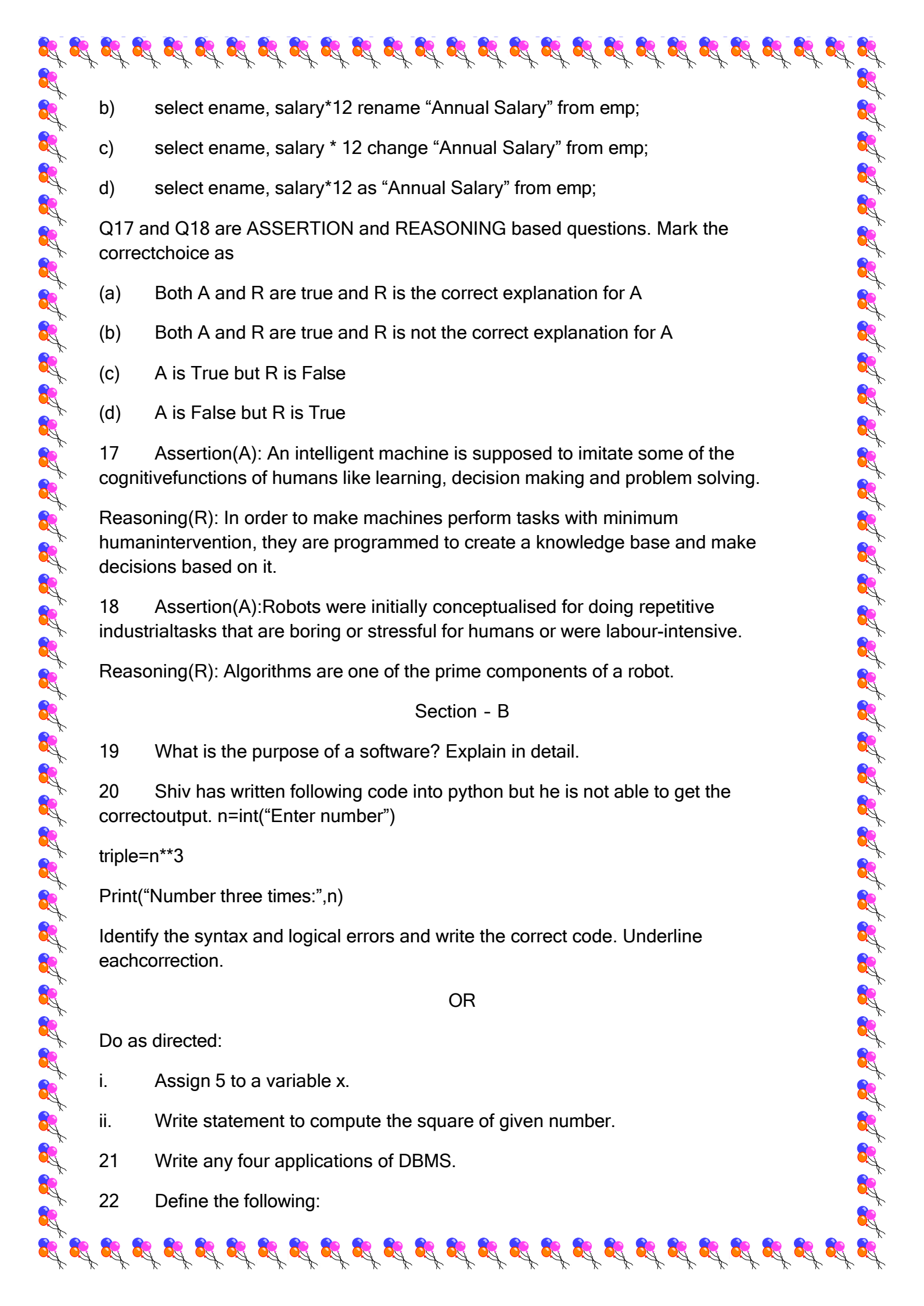
b) Alter

c) Drop

d) Delete

16 Rajveer wants to rename column in display result for his query. He has given the following queries, select correct query for him:

a) `select ename, salary*12 Annual Salary from emp;`

- 
- b) select ename, salary\*12 rename "Annual Salary" from emp;
  - c) select ename, salary \* 12 change "Annual Salary" from emp;
  - d) select ename, salary\*12 as "Annual Salary" from emp;

Q17 and Q18 are ASSERTION and REASONING based questions. Mark the correct choice as

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is False but R is True

17 Assertion(A): An intelligent machine is supposed to imitate some of the cognitive functions of humans like learning, decision making and problem solving.

Reasoning(R): In order to make machines perform tasks with minimum human intervention, they are programmed to create a knowledge base and make decisions based on it.

18 Assertion(A): Robots were initially conceptualised for doing repetitive industrial tasks that are boring or stressful for humans or were labour-intensive.

Reasoning(R): Algorithms are one of the prime components of a robot.

### Section - B

19 What is the purpose of a software? Explain in detail.

20 Shiv has written following code into python but he is not able to get the correct output. n=int("Enter number")

```
triple=n**3
```

```
Print("Number three times:",n)
```

Identify the syntax and logical errors and write the correct code. Underline each correction.

OR

Do as directed:

- i. Assign 5 to a variable x.
- ii. Write statement to compute the square of given number.

21 Write any four applications of DBMS.

22 Define the following:

i. Domain

ii. Degree

23 Enlist any four basic MySQL elements and explain any one in detail.

OR

Explain the following elements of SQL commands in one line each:

i. Keywords    ii. Statements    iii. Clauses    iv. Arguments

24 Dhruvee has given the following table structure and asked to create a table in MySQL. Help her by writing create table command to accomplish her task.

Table Name: players

ColumnName	datatype	size
jersey_no	int	2
player_name	varchar	20
Matches_played	int	3
Runs	int	5

25 What do you mean by constraints? Enlist the constraints supported by MySQL.

Section - C

26 Priyam is Class XI student. She is learning some basic commands. Suggest some SQL commands to her to do the following tasks:

i. To show the lists of existing databases

ii. Select a database to work

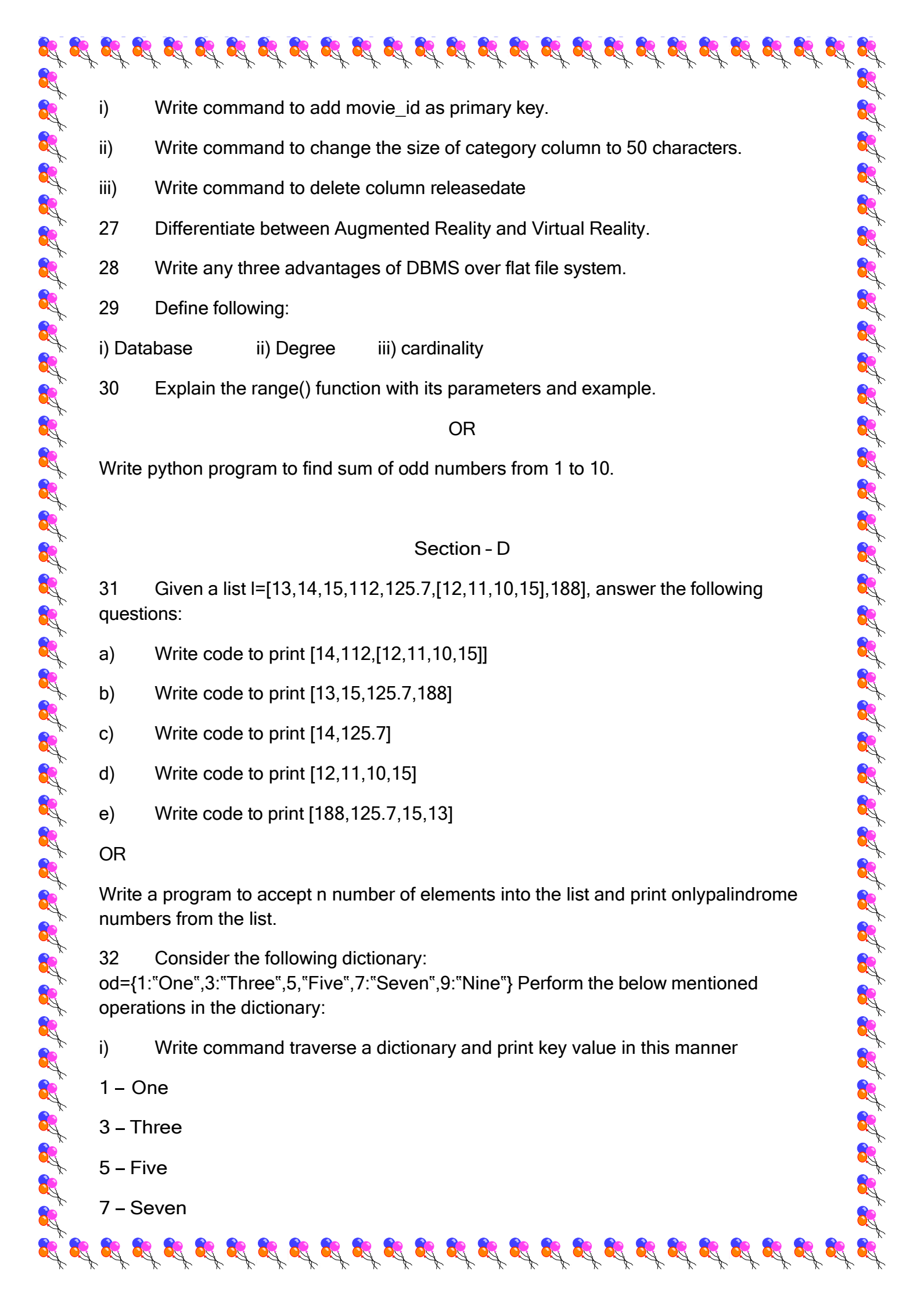
iii. Create a new database named Annual\_Exam

OR

Observe the following table and write answers for the below given questions:

Table Name: Movie

Movie_id	Movie_name	Category	releasedate	Director
M0001	Gandhi Godse	History	2023-01-26	Rajkumar Santoshi
M0002	Faraaz	Action	2023-02-03	Hansal Mehta
M0003	Shehzada	Drama	2023-02-10	Rohit Dhawan
M0004	Bawaal	Null	2023-04-07	Nitesh Tiwari

- 
- i) Write command to add movie\_id as primary key.
  - ii) Write command to change the size of category column to 50 characters.
  - iii) Write command to delete column releasedate
- 27 Differentiate between Augmented Reality and Virtual Reality.
- 28 Write any three advantages of DBMS over flat file system.
- 29 Define following:
- i) Database
  - ii) Degree
  - iii) cardinality
- 30 Explain the range() function with its parameters and example.

OR

Write python program to find sum of odd numbers from 1 to 10.

#### Section - D

- 31 Given a list l=[13,14,15,112,125.7,[12,11,10,15],188], answer the following questions:
- a) Write code to print [14,112,[12,11,10,15]]
  - b) Write code to print [13,15,125.7,188]
  - c) Write code to print [14,125.7]
  - d) Write code to print [12,11,10,15]
  - e) Write code to print [188,125.7,15,13]

OR

Write a program to accept n number of elements into the list and print onlypalindrome numbers from the list.

- 32 Consider the following dictionary:  
od={1:"One",3:"Three",5,"Five",7:"Seven",9:"Nine"} Perform the below mentioned operations in the dictionary:

- i) Write command traverse a dictionary and print key value in this manner

1 – One

3 – Three

5 – Five

7 – Seven

9 - Nine

- ii) Write command to print only keys of dictionary
- iii) Write command to print only the values which doesn't contain „n“
- iv) Write command to print the corresponding value to the key 7
- v) Write command to delete the last element of dictionary

OR

Write a program to create a dictionary with rollno, name and marks of n no. of students and display names of students who have scored more than 90 marks in any subject.

33 Explain the following with example with respect to MySQL:

- i) Putting text into query output
- ii) Using column aliases
- iii) Perform simple computation in query results
- iv) Handling null values
- v) Pattern matching

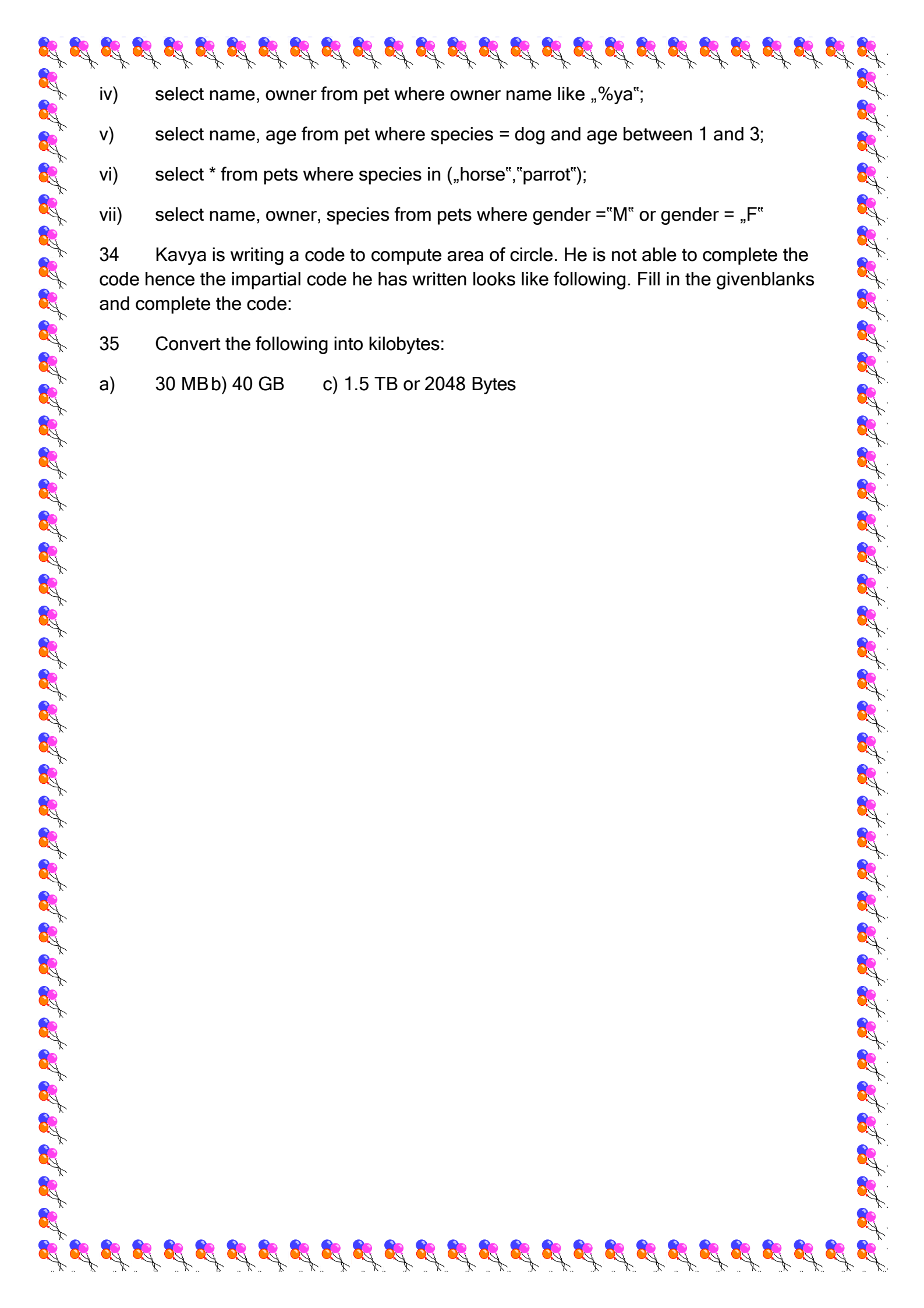
OR

Consider the below given table and write queries for (i) to (iii) and output of (iv) - (vii):

Table Name: Pet

Name	Owner	Species	Gender	Age
Monty	Aditya	Dog	M	4
Badal	Dev	Horse	M	4
Moti	Motisingh	Dog	M	3
Mittu	Harsh	Parrot	M	2
Pinky	Kartvya	Cat	F	1
Sweety	Vyas	Cat	F	2

- i) Display name, owner and gender for all dogs.
- ii) Display Name, owner and age of all pets whose age is more 2 years.
- iii) Display name, owner, gender, and age in double for all pets.

- 
- iv) select name, owner from pet where owner name like „%ya“;
  - v) select name, age from pet where species = dog and age between 1 and 3;
  - vi) select \* from pets where species in („horse“,“parrot“);
  - vii) select name, owner, species from pets where gender =“M“ or gender = „F“

34 Kavya is writing a code to compute area of circle. He is not able to complete the code hence the impartial code he has written looks like following. Fill in the given blanks and complete the code:

35 Convert the following into kilobytes:

- a) 30 MB
- b) 40 GB
- c) 1.5 TB or 2048 Bytes

प्रतिदर्श प्रश्न पत्र  
हिंदी (ऐच्छिक)  
कक्षा - 11वीं

निर्धारित समय : 3 घंटे

अधिकतम अंक : 70

सामान्य निर्देश :-

- (1) इस प्रश्न पत्र में तीन खंड क, ख, ग हैं।
- (2) प्रश्नों के निर्देशों को ध्यानपूर्वक पढ़िए और उनका पालन कीजिए।
- (3) सभी खंडों के प्रश्नों के उत्तर देना अनिवार्य है।
- (4) यथासंभव सभी खंडों के प्रश्नों के उत्तर क्रमशः लिखिए।

**खंड - क अपठित बोध**

15

प्रश्न 1 निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर दीजिए -

(10)

संसार में दो अचूक शक्तियाँ है-वाणी और कर्म। कुछ लोग वचन से संसार को राह दिखाते हैं और कुछ लोग कर्म से। शब्द और आचार दोनों ही महान शक्तियाँ हैं। शब्द की महिमा अपार हैं। विश्व में साहित्य, कला, विज्ञान, शास्त्र सब शब्द-शक्ति के प्रतीक प्रमाण है, पर कोरे शब्द व्यर्थ होते हैं, जिनका आचरण न हो। कर्म के बिना वचन, व्यवहार के बिना वाणी की सिद्धसार्थकता नहीं है। निस्संदेह शब्द-शक्ति महान है, पर चिरस्थायी और सनातनी शक्ति तो व्यवहार है। महात्मा गांधी ने इन दोनों की कठिन और अद्भुत साधना की थी। महात्मा जी का सम्पूर्ण जीवन उन्हीं दोनों से युक्त था। वे वाणी और व्यवहार में एक थे। जो कहते थे, वही करते थे। यहीं उनकी महानता का रहस्य था। कस्तूरबा ने शब्द की अपेक्षा कृति की उपासना की थी, क्योंकि कृति का उत्तम व चिरस्थायी प्रभाव होता है। कस्तूरबा ने कोरी शाब्दिक, शास्त्रीय, सैद्धांतिक शब्दावली नहीं सीखी थीं। वे तो कर्म की उपासिका थीं। उनका विश्वास शब्दों की अपेक्षा कर्मों में था। वे जो कहा करती थी उसे पूरा करती थीं। वे रचनात्मक कामों को प्रधानता देती थीं। इसी के बल पर उन्होंने अपने जीवन में सार्थकता और सफलता प्राप्त की थीं।

(i) **वाणी और कर्म में कैसी शक्तियाँ हैं ?**

1

- (क) चूक
- (ख) अचूक
- (ग) महान
- (घ) परम

(ii) **चिरस्थायी शक्ति कौन-सी है ?**

1

- (क) समाज
- (ख) व्यवहार
- (ग) सम्मान
- (घ) सिद्धांत

(iii) **कौन वाणी और व्यवहार में एक थे ?**

1

- (क) विवेकानंद
- (ख) शास्त्री जी
- (ग) गाँधी जी
- (घ) नेहरू जी

- (iv) शब्द शक्ति के प्रमाणों के नाम बताइये। 1
- (v) संसार की दो अचूक शक्तियाँ कौन-सी हैं और लोग किस प्रकार उनका प्रयोग करते हैं ? 2
- (vi) महात्मा जी की महानता का क्या रहस्य था? 2
- (vii) कस्तूरबा ने किसकी उपासना की? और क्यों? 2
- प्रश्न 2 निम्नलिखित काव्यांश को ध्यानपूर्वक पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए। (5)

जब भी  
 भूख से लड़ने  
 कोई खड़ा हो जाता है  
 सुन्दर दिखने लगता है। ; झपटता बाज़,  
 फ़न उठाए साँप  
 दो पैरों पर खड़ी  
 काँटों से नन्हीं पत्तियाँ खाती बकरी, दबे पाँव झाड़ियों में चलता चीता, डाल पर उल्टा लटक  
 फल कुतरता तोता  
 या इन सबकी जगह  
 आदमी होता।  
 जब भी भूख से लड़ने  
 कोई खड़ा हो जाता है।  
 सुन्दर दिखने लगता है।

- (i) कब कोई सुंदर दिखने लगता है? 1
- (क) भूखा  
 (ख) प्यासा  
 (ग) भागता  
 (घ) भूख से लड़ने वाला
- (ii) चीता कैसे चलता है? 1
- (क) कूदता  
 (ख) दबे पाँव  
 (ग) नाचता  
 (घ) चिल्लाता
- (iii) कौन-सा पक्षी उल्टा लटक सकता है? 1
- (क) चिड़िया  
 (ख) तोता  
 (ग) कौआ  
 (घ) मोर
- (iv) लेखक ने भूख से लड़ने वाले को "सुंदर" क्यों कहा है? उदाहरण देकर समझाइए। 2

खंड- ख - अभिव्यक्ति व माध्यम

- प्रश्न 3 निम्नलिखित प्रश्नों के उत्तर लिखो। (5)
- (क) जनसंचार के कौन-कौन से साधन हैं? 1
- (ख) शब्दकोष किसे कहते हैं? 2



प्रश्न 4 निम्नलिखित में से किसी एक विषय पर दृश्य लेखन लिखिए -

5

(क) पर्वतों पर सुबह का दृश्य

(ख) विद्यालय के वार्षिक समारोह का दृश्य

प्रश्न 5

(क) सड़कों की खराब दुर्दशा का वर्णन करते हुए किसी समाचार पत्र के संपादक को पत्र लिखिए।

5

अथवा

(ख) किसी विद्यालय में खेल - प्रशिक्षक के पद के लिए आवेदन - पत्र लिखिए।

प्रश्न 6 विद्यालय में आयोजित पर्यावरण जागरूकता कार्यक्रम पर प्रकाश डालते हुए विद्यालय के हेड बॉय / गर्ल की ओर से प्रतिवेदन लिखिए।

3

प्रश्न 7 ब्रेकिंग न्यूज़ पर टिपणी लिखिए।

3

खंड- ग

(पाठ्यपुस्तक - अंतरा)

34

प्रश्न 8 निम्नलिखित पद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर के लिए सही विकल्प का चयन कीजिये -

(1x5=5)

मगध में व्यवस्था रहने ही चाहिए  
मगध में न रही, तो कहाँ रहेगी?  
क्या कहेंगे लोग?  
लोगों का क्या? लोग तो यह भी कहते हैं  
मगध अब कहने को मगध है!  
रहने को नहीं!  
कोई टोकता नहीं  
इस डर से कि  
मगध में टोकने का रिवाज़ न बन जाए  
एक बार शुरू होने पर  
कहीं नहीं रुकता हस्तक्षेप

(क) "मगध अब कहने को मगध है, रहने को नहीं" का क्या मतलब है?

1

- मगध में कोई व्यवस्था नहीं है
- मगध में बहुत सारी सुविधाएँ हैं
- मगध अब प्राचीन नहीं है
- मगध को लोग अब भूल चुके हैं

(ख) कविता में यह क्यों कहा गया है कि "मगध में टोकने का रिवाज़ न बन जाए"?

1

- क्योंकि लोग हस्तक्षेप करने से डरते हैं
- क्योंकि हस्तक्षेप एक आदत बन जाएगी
- क्योंकि टोकना गलत है
- क्योंकि लोग एक दूसरे से नफरत करते हैं

(ग) "क्या कहेंगे लोग?" यह वाक्य किस स्थिति को दर्शाता है?

1

- सामाजिक दबाव
- लोगों की चिंता
- व्यर्थ की बातें
- संघर्ष

घ) कविता में यह क्यों कहा गया है कि "कोई टोकता नहीं"?

- i) क्योंकि लोग खुश हैं
- ii) क्योंकि लोग भयभीत हैं
- iii) क्योंकि लोग अपने काम में व्यस्त हैं
- iv) क्योंकि लोग शांत हैं

1

ङ) "मगध में व्यवस्था रहने ही चाहिए, मगध में न रही, तो कहाँ रहेगी?" इस वाक्य से क्या अभिप्राय है?

- i) मगध में कोई समस्या नहीं है
- ii) मगध का प्रशासन अच्छा होना चाहिए
- iii) मगध में लोग हमेशा खुश रहते हैं
- iv) मगध को फिर से सुधारने की जरूरत है

1

प्रश्न 9 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए -

(2+2=4)

(क) 'जाग तुझको दूर जाना' कविता में कवयित्री मानव को किन विपरीत स्थितियों में आगे बढ़ने के लिए उत्साहित कर रही है?

2

(ख) 'बालम आवो हमारे गेह रे' में कवि किसका आह्वान कर रहा है और क्यों?

2

(ग) 'मगध को बनाए रखना है, तो, मगध में शांति रहनी ही चाहिए' - भाव स्पष्ट कीजिए।

2

प्रश्न 10 निम्नलिखित काव्यांश की सप्रसंग व्याख्या लिखिए।

(5)

भूल गये लाला अपनी सुधि, भूल गया सब ब्याज, मूलधन!

सकुची-सी परचून किराने की ढेरी लग रहीं ही तुच्छतर,

इस नीरव प्रदोष में आकुल उमड़ रहा अंतर जग बाहर!

अनुभव करता लाला का मन, छोटी हस्ती का सस्तापन,

जाग उठा उसमें मानव, औ' असफल जीवन का उत्पीड़न!

प्रश्न 11 निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर सही विकल्प चुनकर लिखिए।

(1x5=5)

सुकिया के पीछे-पीछे चल पड़ने से पहले मानो ने जसदेव की ओर देखा था। मानो को यकीन था,

जसदेव उनका साथ देगा। लेकिन जसदेव को चुप देखकर उसका विश्वास टुकड़े-टुकड़े हो गया

था। मानो के सीने में एक टीस उभरी थी। सर्द साँस में बदलकर मानो को छलनी कर गई थी।

उसके होंठ फड़फड़ाए थे कुछ कहने के लिए लेकिन शब्द घुटकर रह गए थे। सपनों के काँच

उसकी आँख में किरकिरा रहे थे। वह भारी मन से सुकिया के पीछे-पीछे चल पड़ी थी, अगले

पड़ाव की तलाश में, एक दिशाहीन यात्रा पर।

(क) मानो को जसदेव के बारे में क्या उम्मीद थी?

- i) जसदेव उसका साथ नहीं देगा
- ii) जसदेव उसका साथ देगा
- iii) जसदेव उसे छोड़ देगा
- iv) जसदेव उसे तंग करेगा

1

(ख) जसदेव की चुप्पी देखकर मानो को क्या महसूस हुआ?

- i) आशा
- ii) संतोष
- iii) विश्वास टूटना
- iv) खुशी

1

(ग) "मानो के सीने में एक टीस उभरी थी" का क्या अर्थ है?

- i) खुशी
- ii) दुख और पीड़ा
- iii) राहत
- iv) चमत्कार

1

घ) मानो के होंठ क्यों फड़फड़ाए थे?

- i) खुशी से
- ii) गुस्से से
- iii) कुछ कहने के लिए
- iv) डर से

1

ङ) मानो की यात्रा कैसी थी?

- i) दिशाहीन
- ii) लक्ष्यपूर्ण
- iii) खुशी से भरी
- iv) आसान

1

प्रश्न 12 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए -

(2+2=4)

(क) हामिद ने चिमटे की उपयोगिता को सिद्ध करते हुए क्या - क्या तर्क दिए?

2

(ख) गूँगे ने अपने स्वाभिमानी होने का परिचय किस प्रकार दिया?

2

(ग) लेखक और लाल का क्या संबंध था? लेखक ने लाल को क्या सलाह दी? उसकी माँ कहानी के आधार पर लिखिए।

2

प्रश्न 13 निम्नलिखित गद्यांश की सप्रसंग व्याख्या लिखिए।

(5)

14 जनवरी 1848 को पुणे के बुधवार पेठ निवासी भिड़े के बाड़े में पहली कन्याशाला की स्थापना हुई। पूरे भारत में लड़कियों की शिक्षा की यह पहली पाठशाला थी। भारत में 3000 सालों के इतिहास में इस तरह का काम नहीं हुआ था। शूद्र और शूद्रातिशूद्र लड़कियों के लिए एक के बाद

लांछनों और बहिष्कार का सामना करना पड़ा। ज्योतिबा के धर्मभीरू पिता ने पुरोहितों और रिश्तेदारों के दबाव में अपने बेटे और बहू को घर छोड़ देने पर मजबूर किया।

(पूरक पाठ्यपुस्तक - अंतराल )

- प्रश्न14 निम्नलिखित में से किन्ही दो प्रश्नों के उत्तर लिखिए - (3+3=6)
- (क) नाना के घर किन - किन बातों का निषेध था? शरत को उन निषिद्ध कार्यों को करना क्यों प्रिय था? 3
- (ख) क्या अभाव, अधूरापन मनुष्य के लिए प्रेरणादायी हो सकता है? आवारा मसीहा पाठ के आधार पर लिखिए। 3
- (ग) कला के प्रति लोगों का नज़रिया पहले कैसा था और अब हमें उसमे क्या बदलाव नज़र आता है ? 3

\*\*\*\*\*



# Biology

**Time Allowed: 3 hours**

**Maximum Marks: 60**

**General Instructions:**

1. All questions are compulsory.
2. The question paper has five sections and 33 questions. All questions are compulsory.
3. Section-A has 16 questions of 1 mark each; Section-B has 4 questions of 2 marks each; Section- C has 4 questions of 3 marks each; Section- D has 2 case-based questions of 4 marks each; and Section-E has 2 questions of 5 marks each.
4. There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
5. Wherever necessary, neat and properly labeled diagrams should be drawn.

## Section A

1. Which is the topmost taxa in zoology?
  - a) Phylum
  - b) Division
  - c) Order
  - d) Kingdom
2. If kidney tissues are supplied with blood low in oxygen then:
  - a) Both tubular reabsorption and ultrafiltration stops
  - b) Both tubular reabsorption and ultrafiltration continue normally
  - c) Ultrafiltration stops
  - d) Tubular reabsorption stops
3. Amino acids are also known as:
  - a)  $\delta$  - amino acid
  - b)  $\beta$  -amino acid
  - c)  $\gamma$  -amino acid
  - d)  $\alpha$  -amino acid
4. Bulliform or motor cells are present in
  - a) Dorsiventral leaves of dicot
  - b) Isobilateral leaves of monocot
  - c) Unifacial leaves of monocot
  - d) Dorsiventral leaves of monocot
5. It is known that exposure to carbon monoxide is harmful to animals because:
  - a) It increases  $O_2$  transport
  - b) It increases  $CO_2$  transport
  - c) It reduces  $CO_2$  transport
  - d) It reduces  $O_2$  transport
6. Which is the most effective wavelength of light for photosynthesis?
  - a) Yellow
  - b) Violet

c) Red

d) Green

7. The condition of accumulation of urea in the blood is termed as:

a) Glomerulonephritis

b) Ketonuria

c) Uremia

d) Renal Calculi

8. Platelets are formed from the\_\_\_\_\_.

a) Haemocytes

b) Microkayocytes

c) Thrombocytes

d) Megakaryocytes

9. A farmer grows cucumber plants in his field. He wants to increase the number of female flowers in them. Which plant hormones can be applied to achieve this?

a) Gibberellins

b) Auxins

c) Ethylene

d) Abscisic acid

10. In mosses, the sex organs arise from:

a) Foot

b) Leaf apex

c) Setae

d) Capsule

11. The following substances are the excretory products in animals. Choose the least toxic form among the

a) Carbon dioxide

b) Ammonia

c) Urea

d) Uric acid

12. Loud snoring and labored breathing are symptoms of:

a) Peripheral sleep apnea  
apnea

b) Obstructive sleep

c) Bronchitis

d) Central sleep apnea

13. **Assertion (A):** Hippocrates is known as father of Biology.

**Reason (R):** Hippocrates gave binomial classification of organisms.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) Both A and R are false

14. **Assertion (A):** Receptors associated with the aortic arch and carotid artery also can recognize changes in CO<sub>2</sub> and H<sup>+</sup> concentration.

**Reason (R):** It sends necessary signals to the rhythm centre for remedial actions.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.  
true.

d) A is false but R is

**Assertion (A):** Enzymes of glycolysis are constitutive enzymes.

**Reason (R):** They are present over mitochondrial cristae.

- a) Both A and R are true and R is the correct explanation of A.                      b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false. R is true.                      d) A is false but R is true.

16. **Assertion (A):** Abdominal muscle is related with respiration in animals.

**Reason (R):** Relaxation of abdominal muscles draws in air.

- a) Both A and R are true and R is the correct explanation of A.                      b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.                      d) A is false but R is true.

### SECTION B

17. What is the difference between monocot and dicot leaves?
18. Draw a well labelled diagram of both ventral and dorsal views of the brain of the frog.
19. Mention any four activities regulated by the estrogen hormone.
20. *Eichornia crassipes* is called as an exotic species while *Rauvolfia serpentina* is an endemic species in India. What do these terms exotic and endemic refer to?

### SECTION C

21. Differentiate between the following:
- Red algae and brown algae
  - Liverworts and moss
  - Homosporous and heterosporous pteridophyte
22. Differentiate between:
- Acoelomate and pseudocoelomate
  - Notochord and nerve cord
  - Polyp and medusa
23. What are Lipids? Explain.
24. Name one synthetic auxin that can be used as a herbicide. Give one more application of the same.
25. Mention and explain the special properties of muscle.

26. What is the significance of the time gap in the passage of action potential from the sinoatrial node to the ventricle?

OR

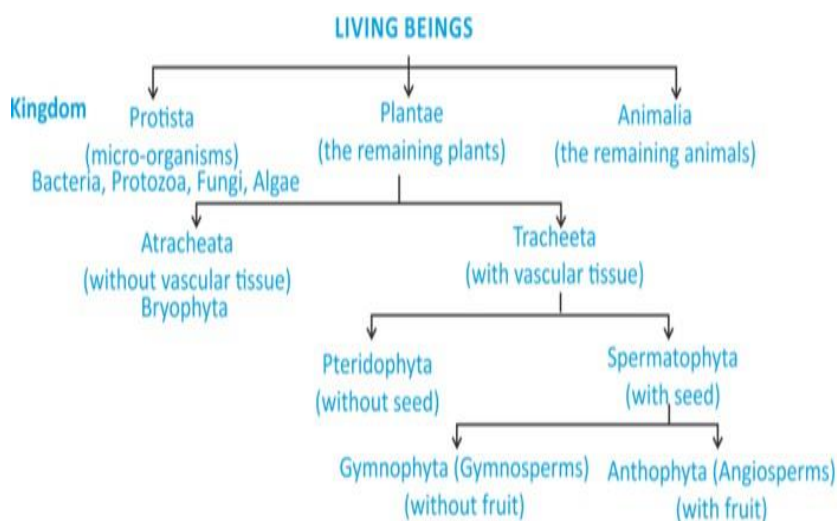
Differentiate between right ventricle and left ventricle.

### Section D

27. Read the following text carefully and answer the questions that follow:

Linnaeus gave two kingdom classification/which consists of kingdom Plantae and kingdom Animalia. This classification was based on the mode of nutrition/ reproduction/ presence or absence of cell wall. However, this system had many drawbacks like there was no distinction between eukaryotes and prokaryotes. Then, came the three-kingdom classification in which single-celled bacteria and protozoans were kept in the kingdom Protista.

This system also failed to classify all living organisms into appropriate categories. Finally a five Kingdom classification was proposed by dividing all the organisms into five kingdom and it will be accepted as modern system of classification.



- i. We know that Haeckel proposed the term Protista for unicellular organisms. Observe the given flowchart and mention what are advantages does the five-kingdom classification have over the two-kingdom classification? (1)
- ii. All eukaryotic unicellular organisms belong to which kingdom? Also, mention its two characteristics. (1)
- iii. What is heterotrophic? Is Euglena heterotrophic? (2)

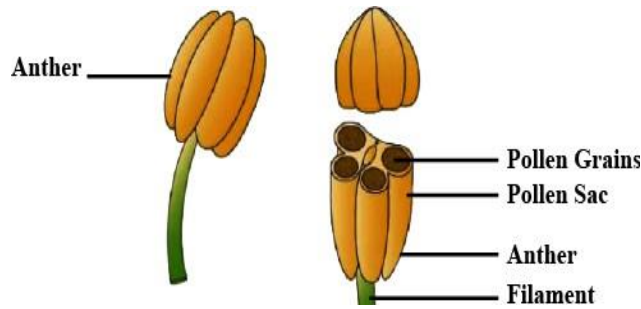
OR

Who proposed the five-kingdom classification? And which criteria were used to classify organism in the 5- kingdom system? (2)



20. Read the following text carefully and answer the questions that follow.

The androecium is composed of stamens. Each stamen that represents the male reproductive organ consists of a stalk or a filament and an anther. Each anther is usually bilobed and each lobe has two chambers, the pollen-sacs. Stamens of flowers may be united with other members such as petals or among themselves. The stamens may be epipetalous or epiphyllous. A flower is a modified shoot wherein the shoot apical meristem changes to floral meristem. Internodes do not elongate and the axis gets condensed. The apex produces different kinds of floral appendages laterally at successive nodes instead of leaves. The arrangement of flowers on the floral axis is termed an inflorescence.

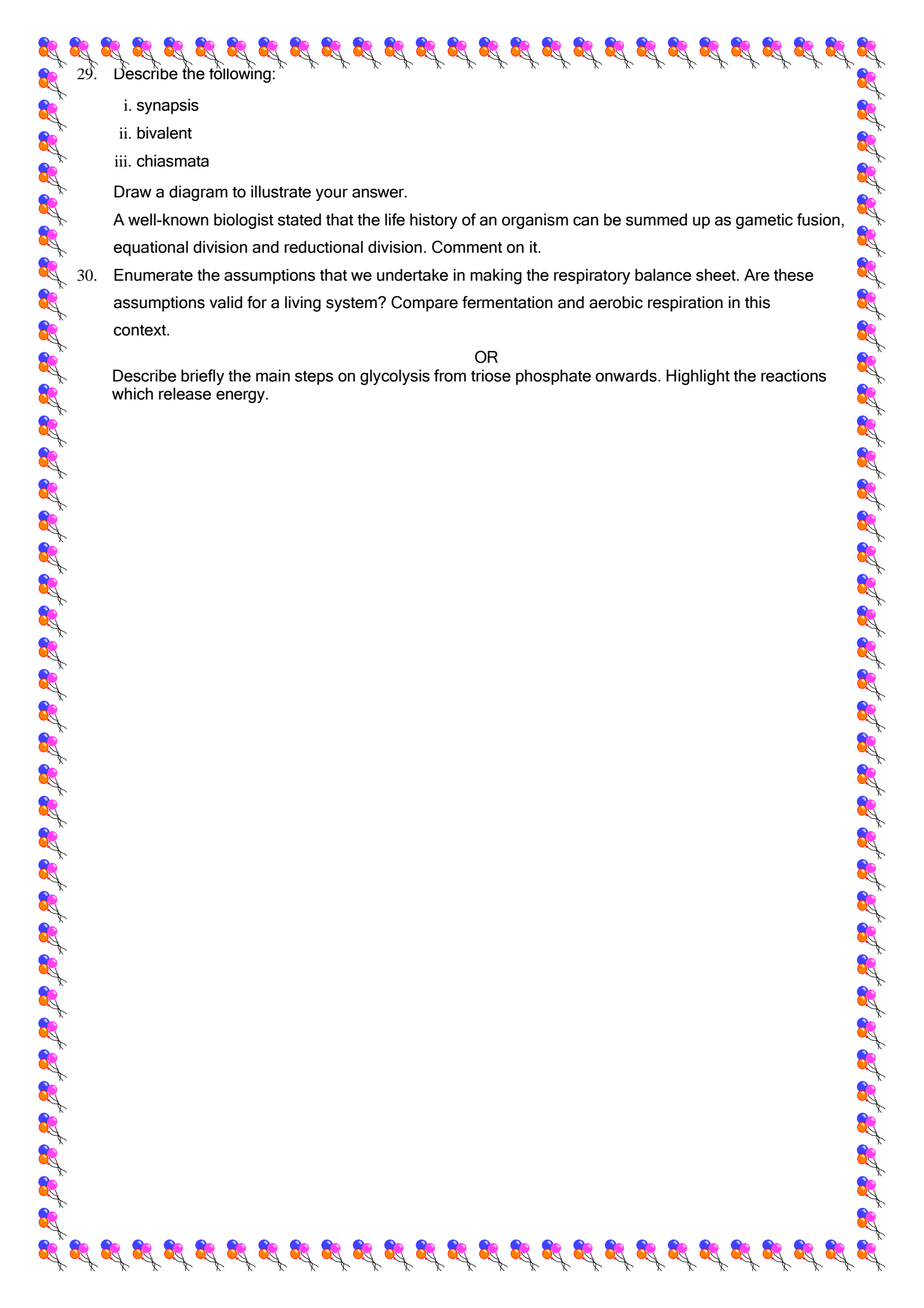


- i. Observe the figure and mention what is androecium composed of. (1)
- ii. The pollen grains are produced in pollen-sacs. What is a sterile stamen called? (1)
- iii. Is salvia and mustard show variation in the length of filaments within a flower? (2)

**OR**

Mention statement justifies that the given figure is racemose inflorescence. (2)





29. Describe the following:

- i. synapsis
- ii. bivalent
- iii. chiasmata

Draw a diagram to illustrate your answer.

A well-known biologist stated that the life history of an organism can be summed up as gametic fusion, equational division and reductional division. Comment on it.

30. Enumerate the assumptions that we undertake in making the respiratory balance sheet. Are these assumptions valid for a living system? Compare fermentation and aerobic respiration in this context.

OR

Describe briefly the main steps on glycolysis from triose phosphate onwards. Highlight the reactions which release energy.