

AGRA PUBLIC SCHOOL 8-10 OLD VIJAY NAGAR
SESSION-2020-2021
ASSIGNMENT-1
CLASS-XII

ENGLISH CORE

Assignment-1

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

ELECTRONIC JUNK MAIL

You would have seen an increasing amount of "junk mail" showing up in your e-mail box. The so-called harmless activities of a small number of people are increasingly becoming a serious problem for the Internet. Spam is the flooding of the Internet with many copies of the same message, in an attempt to force the message on people who would not otherwise choose to receive it. Spam is basically electronic junk mail or junk newsgroup postings. It is sometimes confused with any unsolicited e-mail. But an old friend may also find your e-mail address on the Net and send you a message but this could hardly be called spam, even though it is unsolicited. Real spam is generally e-mail advertising for some product sent to a mailing list or newsgroup. In addition to wasting people's time with unwanted e-mail, spam also eats up a lot of network bandwidth. There are many organizations and individuals who have taken it upon themselves to fight spam with a variety of techniques. The problem is that because the Internet is public, there is very little that can be done to prevent spam, just as it is impossible to prevent junk mail. One of the most recent examples of large-scale spamming was the hoax Ericsson e-mail about a free give away, something most people just cannot resist. The letter begins with a claim that since Nokia is giving away telephones, Ericsson will respond by giving away brand new WAP phone. But the recipient must forward the letter to a minimum of 20 people to receive the phone. The letter is signed by Anna Swelund, Executive Promotion Manager for Ericsson Marketing. It was later discovered that there was no such person at Ericsson.

There are numerous instances of these e-mails being used maliciously by someone who has a grudge against an ex-spouse, a public official, a former teacher or someone else with an e-mail address. The person mentioned in the e-mail ends up with thousands of requests from people looking for confirmation that the e-mail—which they actually had nothing to do with—is true. Spamming works on our own greed to receive freebies. You are instructed by a total stranger (or a well meaning but not very bright friend) to forward a message you know nothing about, except for the fact that may be a friend passed it along to you and about 90 of their-other very -close friends. Very often the victim can receive so many e-mails (and sometimes faxes and phone calls in the more malicious cases) that they have to get a new e-mail box or phone number—thereby ruining established personal and professional communication channels, which was the original intent of the sender. Most spam is commercial advertising, often for dubious products, get-rich-quick schemes, or quasi-legal services. It costs the sender very little to send—most of the costs are paid for by the recipient or the carriers rather than by the sender. There are two main types of spam, and they have different effects on internet users. Cancellable use-net spam is a single message sent to 20 or more use-net newsgroups. Usenet spam is aimed at "lurkers", people who read newsgroups but rarely or never post and give their address away. Usenet spare robs users of the utility of the newsgroups by overwhelming them with a barrage of advertising or other irrelevant posts. Furthermore, use-net spam subverts the ability of system administrators and owners to manage the topics they accept on their systems. E-mail spam targets individual users with direct mail messages. They typically cost users money out-of-pocket to receive. Most of us read or receive our mail through dial-up accounts while

the meter is running, so to speak. There is not much really that can be done to protect yourself except that you can ensure your relative safety by creating internet e-mail accounts like Hotmail or Yahoo which can be easily and frequently changed. Further, these accounts also generally offer the option of blocking senders from whom you get spam and you can also opt to block e-mail which has been copied to more than 20 people. One can also keep oneself informed about spammers through the Blacklist of Internet Advertisers, a popular report that describes the offending activities of spammers that routinely distribute large mailings via e-mail or post unwelcome advertising on newsgroups. You can also visit www.spam.abuse.net. Another organization devoted to countering the destructive effects of spam is MAPS or the Mail Abuse Prevention System. If an offending spammer cannot be shut down, the spammer's ISP may contact MAPS with the subnet addresses allocated to the spammer so those specific addresses may be used instead of the IP address of the entire ISP.

Q.: Choose the most appropriate option:

(a) E-mail spam victims.....

- (i) group (ii) individuals (iii) males (iv) females

(b) Usenet spam deprives the users of

- (i) the utility of the newsgroups (ii) net facility
(iii) actual information (iv) none of the above

(c) Name the organisation that counters the devastating efforts of spam

- (i) MASP (ii) MAPS (iii) MPAS (iv) MSAP

(d) Who has to pay most of the costs of spam? .

- (i) senders (ii) receivers (iii) carriers (iv) either (ii) or (iii)

Answer the following questions briefly.

(e) What is spam? What problems are caused to net surfers by spamming?

(f) Give an examples of recent large scale spamming.

(g) How does spamming work? Whom does it hit-sender or receiver?

(h) What are the two main types of spams and their effects on Internet users?

(i) How can one protect oneself against spam? Give two examples.

(j) Who uses e-mail spam frequently?

(k) Find words in the passage similar in meaning as:

(a) a mischievous trick played on somebody for a joke (lines 10 to 20)

(b) disreputable or risky (lines 31 to 40).

Q2. Read the passage given below:

1. "We become brave by doing brave acts," observed Aristotle in the *Nicomachean Ethics*. Dispositions of character, virtues and vices, are progressively fixed in us through practice. Thus by being habituated to despise things that are terrible and to stand our ground against them we become brave, and it is when we have become so that we shall be most able to stand our ground against them.
2. Standing ground against threatening things is not to be confused with fearlessness however. Being afraid is a perfectly appropriate emotion when confronted with fearful things. The great American novelist Herman Melville makes the Aristotelian point beautifully in a telling passage in *Moby-Dick*, where Starbuck, the chief mate of the *Pequod*, first addresses the crew. "I will have no man in my boat, said Starbuck 'who is not afraid of a whale.' By this, he seemed to mean, not only that the most reliable and useful courage was that which arises from the fair estimation of the encountered peril and that an utterly fearless man is a far more dangerous comrade than a coward."
3. The brave person is not one who is never afraid. That is rather the description of a rash or reckless person, someone who may be more harm than help in an emergency. It is hard to "educate" such a person on the spot. The coward, on the other hand, the one who characteristically lacks confidence and is disposed to be overly fearful, may yet be susceptible to the encouragement of example.
4. The infectious nature of strikingly courageous behaviour on the part of one person can inspire—and also in part can shame—a whole group. That was one key to the kind of courage inspired by Horatius at the bridge in ancient Rome and by Henry V at Agincourt. It was one key to the kind of courage displayed by those who silently suffered abuse when, they joined ranks with Gandhi and Martin Luther King Jr., in acts of non-violent protest directed at rousing the public conscience against injustice.
5. Another key to their success, of course, was reason: practical reason delivered with the kind of eloquence that is informed by a real command of one's cultural heritage and that steels the will to take intelligent action. The mere-inclination to do the right thing is not in itself enough. We have to know what the right thing to do is. We need wisdom—often the wisdom of a wise leader—to give our courage determinate form, to give it intelligent direction. And we need the will, the motivating power that inspiring leaders can sometimes help us discover within ourselves, even when we are unable to find it readily on our own.
6. If Aristotle, is right—and I think that he is—then courage is a settled disposition to feel appropriate degrees of fear and confidence in challenging situations (what is "appropriate" varying a good deal with the particular circumstances). It is also a settled disposition to stand one's ground, to advance or to retreat as wisdom dictates. Before such dispositions become settled, however, they need to be established in the first place. And that means practice; which in turn means facing fears and taking stands in advance of any settled disposition to do so; acting bravely when we don't really feel brave.
7. Fear of the dark is almost universal among young children, and it provides relatively safe opportunities for first lessons in courage. In families, older siblings are greatly assisted in cultivating their own dispositions in this respect by putting up a brave front before their younger brothers or sisters. "You see? There's really nothing to be afraid of." This is excellent practice, and a fine place to begin. Occasions for being brave on behalf of others—for standing by them in challenging circumstances are occasions for becoming brave ourselves; that is, for learning how to handle our own confidence and fear, for figuring out the right thing to do, and for mustering the will to do it.

8. So, daring to do what is not good and beneficial for all is far more insidious than not daring to do something for a right cause. Naturally, bravery well nurtured and backed by moral courage alone is exemplary, and so, should be promoted.

On the basis of your reading of the passage, answer the following questions by choosing the best of the given options.

(a) A person who never gets afraid is called

- (i) brave (ii) valiant (iii) reckless (iv) aware

(b) The fundamental virtue to be brave is to

- (i) be logical (ii) be violent (iii) be firm (iv) Both (i) and (iii)

(c) One should promote bravery which is

- (i) well nurtured (ii) supported by deific virtues
(iii) backed by moral values (iv) All of the above

• Based on your understanding of the passage, answer the following questions:

(d) Explain: 'We become brave by doing brave act'

(e) When is 'being afraid' an appropriate emotion?

(f) How is a brave person different from (i) a reckless person? (ii) a coward?

(g) What was special about the courage that Gandhiji or Horatius had?

(h) The mere inclination to do the right is not enough. What else is required for success?

(i) Find words from the passage which mean the opposite of each of the following:

(i) Depress (para 4) (ii) Incorrect (para 5)

Q3. As Student Editor, draft a notice in not more than 50 words for your school notice board inviting articles from the students for your school magazine. You are Rohan/Rupini of Vasant Vihar School, Pune.

4. You are Anand/Anita of 14, Model Town, Delhi. You have seen an advertisement in The Hindu for the post of Chief Chef in a 5-Star Hotel. Apply for the job with complete biodata. Write in 100-120 words.

5. Write a letter to a newspaper complaining against reckless motor driving. You are Bibhor/Bindu living at 1145-A, Vasundhara Enclave, New Delhi.

6. You are Jay/Jaya, School Pupil under of Shyamala Memorial Hall, Trivandrum. Write a speech in 130-150 words that you would deliver in the school assembly during the vigilance week on how to eradicate corruption from both 'private and public life.

7. You are Shekhar/Tripta a student of A.P. Public School. Principles of two schools from Bhutan visited your school as part of a cultural exchange programme. Students of the school put up a cultural show in their honour. Write a report about it for your school magazine.
 8. You are Keshav/Karuna, a social worker and counsellor. You are concerned about senior class students ignoring sports activities owing to the pressure of examination and coaching classes. Write an article in 130-150 words to be published in a local daily on how sports not only promote physical fitness but also influence our scholastic achievements.
 9. Researchers have proved that women are better than men at juggling more than one task. They also approach multiple problems more methodically and logically. Justify the above quoted words in your article. You are Ameeta Chatterjee. Do not exceed 150 words.
 10. Good citizens are the greatest asset of any country. Most of us display an attitude of indifference towards our responsibilities resulting in damage to environment, loss of public property, etc. Write an article in 150-200 words on 'Responsibilities of a Good Citizen'. You are Gopal/Gopika.
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BUSINESS STUDIES

Assignment-1

1. At which level of management, the managers are responsible for the welfare and survival of the organization?
2. Name the level of management at which the managers are responsible for implementing and controlling the plans and strategies of the organization.
3. (a) Your grandfather has retired as the director of a manufacturing company. At which level of management was he working? Different type of functions are performed at this level. State any one function.

(b) Volvo Ltd.'s target is to produce 10,000 shirts per month at a cost of ₹ 100 per shirt. The production manager achieved this target at a cost of ₹ 90 per shirt. Do you think the production manager is effective? Give one reason in support of your
4. A Company wants to modify its existing product in the market due to decreasing sales. You can imagine any product about which you are familiar. What decisions or steps should each level of management take to give effect to this decision?
5. A firm plans in advance and has a sound organization structure with efficient supervisory staff and control system. On several occasions it finds that plans are not being adhered to. It leads to confusion and duplication of work. Advise remedy.
6. Company X is facing a lot of problems these days. It manufactures goods like washing machines, microwave ovens, refrigerators and air conditioners. The company's margins are under pressure and the profits and market share are declining. The production department blames marketing for not meeting sales targets and marketing blames production department for producing goods, which are not of good quality meeting customers' expectations. The

finance department blames both production and marketing for declining return on investment and bad marketing.

What quality of management do you think the company is lacking? Explain briefly.

What steps should the company management take to bring the company back on track?

7. Identify the nature of management when it is practiced as personalized application of existing knowledge to achieve desired result.

8. After every three months Mrs. Mansi offers new scheme to its distributors and agents. She tries her best to bring changes keeping in mind the needs and wants of customers and incentives offered by competitors. This gives first mover advantage to Mansi and edge over the competitors.

i) Identify the characteristic of management followed by Mansi.

ii) Explain it briefly.

9. Mega Ltd was manufacturing water-heaters. In the first year of its operations, the revenue earned by the company was just sufficient to meet its costs. To increase the revenue, the company analysed the reasons of less revenues. After analysis the company decided

(i) To reduce the labour cost by shifting the manufacturing unit to a backward area where labour was available at a very low rate.

(ii) To start manufacturing solar water-heaters and reduce the production of electric water-heaters slowly.

This will not only help in covering the risks, but also help in meeting other objectives too. (a) Identify and explain the objectives of management discussed above.

10. Success of every organisation depends upon its management'. Explain any five reasons to justify the above statement.

OR

'Lack of proper management results in wastage of time, money and efforts'. In the light of this statement, explain any four points of importance of management.

ECONOMICS

Assignment-1

INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

Q1. What was the focus of the economic policies pursued by the colonial government in India? What were the impacts of these policies?

Q2. Name some notable economists who estimated Indian's per capita income during colonial period?

Q3. What were the main causes of India's agricultural stagnation during the colonial period?

Q4. Name some modern industries which were in operation in our country at the time of independence.

- Q5. What do you understand by the drain of Indian wealth during the colonial period?
- Q6. When was India's first official census operation undertaken?
- Q7. What objectives did the British intend to achieve through their policies of infrastructure development in India?
- Q8. What was the two-fold motive behind the systematic de-industrialization affected by the British in pre - independent India?
- Q9. Which is regarded as the defining year to mark the demographic transition from its first to the second decisive stage?
- Q10. Highlight the salient features of India's pre-independence occupational structure.
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ACCOUNTANCY

Assignment-1

- Q1. From the following information show how these will appear in the financial statements of the Not for profit organization.
- a) Match Fund ` 50,000; Sale of Match tickets ` 20,000; Donation for Match fund ` 30,000; 10% Match fund Investments ` 2,00,000; Interest on Match fund Investments ` 12,000; Expenses on Match were ` 70,000.
 - b) Match Fund ` 50,000; Sale of Match tickets ` 20,000; Donation for Match fund ` 30,000; 10% Match fund Investments ` 2,00,000; Interest on Match fund Investments ` 12,000; Expenses on Match were ` 1,38,000.
 - c) Sports expenses ` 20,000; Income from sports event ` 56,000.
 - d) Sports expenses ` 80,000; Income from sports event ` 24,000.
 - e) Sports fund ` 50,000 Sports expenses ` 20,000; Income from sports event ` 24,000.
 - f) Capital fund ` 10,00,000; donations to be capitalized ` 2,00,000; Pavilion fund ` 60,00,000; donations for Pavilion fund ` 20,00,000; Pavilion was under construction and the work for ` 50,00,000 was completed.
 - g) Pavilion fund ` 60,00,000; donations for Pavilion fund ` 20,00,000; Pavilion was under construction and the work for ` 50,00,000 was completed.
 - h) Capital fund ` 10,00,000; donations to be capitalized ` 2,00,000; donations for Pavilion fund ` 20,00,000; Pavilion was under construction and the work for ` 5,00,000 was completed.

- Q2. Following are the details of the Sports Club you are required to draft the Balance Sheet Extracts and Income and Expenditure Account:

Particulars	`
Capital Fund	15,00,000
Tournament Fund	20,00,000
Tournament Expenses	70,000
Receipts of the tournament	7,00,000
Prize fund	1,00,000
Prizes Paid	25,000
Prize fund Investments	1,00,000
Interest on Prize Fund Investment	10,000
Billiard Match Expenses	60,000
Pavilion Fund	8,00,000
Donations for the Pavilion Fund	2,00,000
Expenditure on construction of Pavilion	3,00,000
Sports Fund	1,00,000
Sale of the Tickets for the sports event	3,00,000
Other income from Sports event	3,00,000
Expenditure on the Sports Event	8,50,000

- Q3. Following are the details of the Sports Club you are required to draft the Balance Sheet Extracts and Income and Expenditure Account:

Particulars	`
Sports Fund	10,00,000
Sports Fund Investments	15,00,000
Donation for Sports fund	3,00,000
Interest On Sports Fund Investments	1,50,000
Sports Prizes Awarded	4,00,000
Expenses on Sports Event	2,00,000
Donations	5,00,000
Subscription	3,50,000
General fund Investments	10,00,000
Interest on General Fund Investments	1,00,000
Pavilion Fund	5,00,000
Donation for Pavilion Fund	2,00,00
Expenses on Construction of Pavilion	3,00,000

Q4. Sports Club Agra had received the subscription in 2020-21 for ` 88,000 Following are the additional information available you are required to ascertain the amount to be shown in the Income and Expenditure account and Balance Sheet

Particulars	`
Outstanding Subscription as on 1 st April 2020	5,200
Outstanding Subscription as on 31 st March 2021	4,800
Subscriptions received in advance on 1 st April 2020	2,400
Subscriptions received in advance on 31 st March 2021	700

Q5. Sports Club Agra had received the subscription in 2020-21 for ` 88,000 including 5,000 for 2020 and 1,700 for 2022. Following are the additional information available you are required to ascertain the amount to be shown in the Income and Expenditure account and Balance Sheet

Particulars	`
Outstanding Subscription as on 1 st April 2020	5,200
Outstanding Subscription as on 31 st March 2021	4,800
Subscriptions received in advance on 1 st April 2020	2,400

Q6. Following are the additional information available you are required to ascertain the amount to be shown in the Income and Expenditure account and Balance Sheet

Receipts	`	Payment	`
To Subscriptions			
2020 4,000			
2021 80,000			
2022 16,000	1,00,000		

Particulars	`
Outstanding Subscription as on 1 st April 2020	5,200
Outstanding Subscription as on 31 st March 2021	4,800

Q7. In 2020, Salaries paid in cash amounted to ` 40,000, ascertain the amount Chargeable to Income and Expenditure Account for the year ending on 31st March, 2020 from the following information's:

Particulars	`
Outstanding Salaries as on 31 st March 2019	3,500

Outstanding Salaries as on 31 st March 2020	5,000
Prepaid Salaries in 31 st March 2019	2,800
Prepaid Salaries in 31 st March 2020	2,400

Q8. Receipts & Payment account of Tanmaiy Entertainment Club showed that ` 78,500 were received by way of Subscriptions for the year ended on 31st March, 2020. The additional information was as under.

- 1) Subscription outstanding as on 31st March, 2019 were ` 7,500.
- 2) Subscriptions received in advance as on 31st March, 2019 ` 4,100.
- 3) Subscriptions Outstanding as on 31st March, 2020 were ` 6,400.
- 4) Subscriptions received in advance as on 31st March 2020 were ` 3,500.

Show how these will appear in the Income and Expenditure account and Balance Sheet for the year ended on 31st March, 2020 of Tanmaiy Entertainment Club.

Q9. Extracts of the Receipts and Payment Account for the Year ending 31st March , 2020 were:

Receipts		Payment	
To Subscriptions			
2018-19 3,000			
2019-20 96,000			
2020-21 2,500	1,01,500		

Additional Information:

Particulars	
Outstanding Subscription as on 31 st March 2019	5,000
Total Subscription as on 31 st March 2020	12,000
Subscriptions received in advance as on 31 st March 2019	2,800

Show how these will appear in the Income and Expenditure account and Balance Sheet for the year ended on 31st March, 2020

Q10. A club has 450 Members each paying an annual subscription of ` 1,000. The Receipt and Payment account for the year showed a sum of ` 3,15,000; received as subscription for 31st March, 2019-20. The following is the additional information :

Particulars	
Outstanding Subscription as on 31 st March 2019	45,000
Subscriptions received in advance as on 31 st March 2020	35,000
Subscriptions received in advance as on 31 st March 2019	17,000

Show how these will appear in the Income and Expenditure account and Balance Sheet for the year ended on 31st March, 2020

Q11. Following is the Receipt and Payment account of Tanmaiy Club from the given information show how the item will be shown in Income & Expenditure Account and in Balance Sheet

Receipts			Payment		
To Subscriptions			By Salaries		
2017-18	3,000		2017-18	30,000	
2018-19	96,000		2018-19	3,00,000	
2019-20	2,500	1,01,500	2019-20	18,000	3,48,000

Particulars	
Outstanding Salaries on 31 st March 2018	40,000
Salaries for the year to be paid	45,000
Salaries paid in advance on 1 st April 2018	10,000

Q12. From the following particulars determine the amount to be debited to the income and expenditure account, for the year ending 31st March 2019.

Stock of Stationery on 1 st April 2018	15,000
Creditors for Stationery on 1 st April, 2019	10,000
Amount paid for stationery during the year ended 31 st March, 2019	54,000
Stock of stationery on 31 st March, 2019	2,500
Creditors for stationery on 31 st March, 2019	6,500

Q13. From the following particulars determine the amount to be debited to the income and expenditure account, for the year ending 31st March 2019.

Stock of Stationery on 1 st April 2018	15,000
Creditors for Stationery on 1 st April, 2018	10,000
Advance paid to Creditors as on 1 st April, 2018	10,000
Amount paid for stationery during the year ended 31 st March, 2019	54,000
Stock of stationery on 31 st March, 2019	2,500
Creditors for stationery on 31 st March, 2019	6,500
Advance paid to Creditors as on 31 st March, 2019	8,000

Q14. From the following particulars determine the amount to be debited to the income and expenditure account, for the year ending 31st March 2019.

	1 st April, 2018	31 st March, 2019
Stock of Stationery	75,000	65,000
Creditors for Stationery	85,000	1,30,000

Case

- A. Amount paid for stationery during the year ended 31st March, 2019 ` 54,000.
- B. Stationery purchased for cash during the year ` 20,000. And payment made for stationery during the year ended 31<sup>st</sup> March, 2019 ` 50,000.
- C. Stationery purchased for cash during the year ` 20,000. Stationery purchased during the year on credit ` 35,000.

Q15. From the following particulars determine the amount to be debited to the income and expenditure account, for the year ending 31st March 2019.

Stock of Stationery on 1 st April 2018	35,000
Creditors for Stationery on 1 st April, 2018	25,000
Advance paid to Creditors as on 1 st April, 2018	5,000
Amount paid for stationery during the year ended 31 st March, 2019	1,50,000
Stock of stationery on 31 st March, 2019	7,000
Creditors for stationery on 31 st March, 2019	15,000
Advance paid to Creditors as on 31 st March, 2019	8,000

PHYSICAL EDUCATION

Assignment-1

PLANNING IN SPORTS

- Q.1 What are the objectives of the planning or explain the objectives of the planning?
- Q.2 What is planning? Write any four objective of planning
- Q.3 Discuss any three objectives of planning with suitable examples from sports.
- Q.4 Write down the role of the various committees post tournament
- Q.5 Write down the role of the various committees before a tournament.
- Q.6 Describe the responsibilities of any three committees before Tournament.
- Q.7 Describe the responsibilities of organizing committee, Publicity committee, grounds & equipment committee during the Tournament.
- Q.8 Describe the responsibility of any three committees during Tournament.
- Q.9 Enlist the name of post tournament committees?
- Q.10. What are the advantage & disadvantages of league or round robin tournament.

OR

Write down the merits & demerits of the league tournament.

- Q.11 Describe the merits & demerits of knock out Tournaments.
 - Q.12 Describe the merits & Demerits of league Tournament.
 - Q.13 Differentiate Between knock out & round robin tournament
 - Q.14. Define tournament and explain its types?
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MATHEMATICS

1. If a matrix has 28 elements, what are the possible orders it can have? What if it has 13 elements?

2. In the matrix $A = \begin{bmatrix} a & 1 & x \\ 2 & \sqrt{3} & x^2 - y \\ 0 & 5 & \frac{-2}{5} \end{bmatrix}$, write:

(i) The order of the matrix A (ii) The number of elements (iii) Write elements a_{23} , a_{31} , a_{12}

3. Construct a 2×2 matrix where

(i) $a_{ij} = \frac{(i-2j)^2}{2}$ (ii) $a_{ij} = |-2i+3j|$

4. Construct a 3×2 matrix whose elements are given by $a_{ij} = e^{ix} \sin jx$.

5. Find values of a and b if $A = B$, where $A = \begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix}$, $B = \begin{bmatrix} 2a+2 & b^2+2 \\ 8 & b^2-5b \end{bmatrix}$.

6. If possible, find the sum of the matrices A and B, where $A = \begin{bmatrix} \sqrt{3} & 1 \\ 2 & 3 \end{bmatrix}$, and $B = \begin{bmatrix} x & y & z \\ a & b & c \end{bmatrix}$

7. If $X = \begin{bmatrix} 3 & 1 & 1 \\ 5 & 2 & 3 \end{bmatrix}$ and $Y = \begin{bmatrix} 2 & 1 & 1 \\ 7 & 2 & 4 \end{bmatrix}$, find

(i) $X + Y$ (ii) $2X - 3Y$
(iii) A matrix Z such that $X + Y + Z$ is a zero matrix.

8. Find non-zero values of x satisfying the matrix equation: $x \begin{bmatrix} 2x & 2 \\ 3 & x \end{bmatrix} + 2 \begin{bmatrix} 8 & 5x \\ 4 & 4x \end{bmatrix} = 2 \begin{bmatrix} x^2+8 & 24 \\ 10 & 6x \end{bmatrix}$.

9. If $A = \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, show that $(A + B)(A - B) \neq A^2 - B^2$.

10. Find the value of x if $\begin{bmatrix} 1 & x & 1 \end{bmatrix} \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$.

11. Show that $A = \begin{bmatrix} 5 & 3 \\ 1 & 2 \end{bmatrix}$ satisfies the equation $A^2 - 3A - 7I = O$ and hence find A^{-1} .

12. Find the matrix A satisfying the matrix equation: $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A \begin{bmatrix} 3 & 2 \\ 5 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Long Answer (L.A.)

13. Find x, y, z if $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ satisfies $A' = A^{-1}$.

14. If possible, using elementary row transformations, find the inverse of the following matrices

$$(i) \begin{bmatrix} 2 & 1 & 3 \\ 5 & 3 & 1 \\ 3 & 2 & 3 \end{bmatrix} \quad (ii) \begin{bmatrix} 2 & 3 & 3 \\ 1 & 2 & 2 \\ 1 & 1 & 1 \end{bmatrix} \quad (iii) \begin{bmatrix} 2 & 0 & 1 \\ 5 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$$

15. Express the matrix $\begin{bmatrix} 2 & 3 & 1 \\ 1 & 1 & 2 \\ 4 & 1 & 2 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix.

Objective Type Questions

Choose the correct answer from the given four options in each of the Exercises 16 to 20.

16. The matrix $P = P = \begin{bmatrix} 0 & 0 & 4 \\ 0 & 4 & 0 \\ 4 & 0 & 0 \end{bmatrix}$ is a

- (A) square matrix (B) diagonal matrix
(C) unit matrix (D) none

17. Total number of possible matrices of order 3×3 with each entry 2 or 0 is

- (A) 9 (B) 27 (C) 81 (D) 512

18. If $\begin{bmatrix} 2x & y & 4x \\ 5x & 7 & 4x \end{bmatrix} = \begin{bmatrix} 7 & 7y & 13 \\ y & x & 6 \end{bmatrix}$, then the value of $x +$

- (A) $x = 3, y = 1$ (B) $x = 2, y = 3$
(C) $x = 2, y = 4$ (D) $x = 3, y = 3$

19. If $A = \frac{1}{\pi} \begin{bmatrix} \sin^{-1}(\pi x) & \tan^{-1} \frac{x}{\pi} \\ \sin^{-1} \frac{x}{\pi} & \cot^{-1}(\pi x) \end{bmatrix}$, $B = \frac{1}{\pi} \begin{bmatrix} -\cos^{-1}(\pi x) & \tan^{-1} \frac{x}{\pi} \\ \sin^{-1} \frac{x}{\pi} & -\tan^{-1}(\pi x) \end{bmatrix}$, then $A - B$ is equal to

- (A) I (B) O (C) $2I$ (D) $\frac{1}{2}I$

20. If A and B are two matrices of the order $3 \times m$ and $3 \times n$, respectively, and $m = n$, then the order of matrix $(5A - 2B)$ is

- (A) $m \times 3$ (B) 3×3 (C) $m \times n$ (D) $3 \times n$

Fill in the blanks in each of the Exercises 21–25.

21. _____ matrix is both symmetric and skew symmetric matrix.
22. Sum of two skew symmetric matrices is always _____ matrix.
23. The negative of a matrix is obtained by multiplying it by _____.
24. The product of any matrix by the scalar _____ is the null matrix.
25. A matrix which is not a square matrix is called a _____ matrix.

State Exercises 26 to 30 which of the following statements are True or False

26. A matrix denotes a number.

- 27. Matrices of any order can be added.
- 28. Two matrices are equal if they have same number of rows and same number of columns.
- 29. Matrices of different order can not be subtracted.
- 30. Matrix addition is associative as well as commutative.