

Accountancy – Class XII

SQP (2019-20)

General Instructions :

- (i) This question paper contains two parts – A and B.
- (ii) Part A is compulsory for all.
- (iii) Part B has two options – Analysis of Financial Statements and Computerised Accounting.
- (iv) Attempt only one option of Part B.
- (v) All parts of a question should be attempted at one place.

PART A (Accounting for Not-for-Profit Organizations, Partnership Firms and Companies)						
1	How are the following items presented in financial statements of a Not-for-Profit organisation:- (a) Tournament Fund- ₹ 80,000 (b) Tournament expenses- ₹ 14,000	1				
2	At what rate is interest payable on the amount remaining unpaid to the executor of deceased partner, in absence of any agreement among partners, when (s)he opts for interest and not share of profit. (a) 12% p.a. (b) 8% p.a. (c) 6% p.a. (d) 7.5% p.a.	1				
3	State the order of payment of the following, in case of dissolution of partnership firm. i. to each partner proportionately what is due to him/her from the firm for advances as distinguished from capital (i.e. partner' loan); ii. to each partner proportionately what is due to him on account of capital; and iii. for the debts of the firm to the third parties;	1				
4	A and B are partners in a firm having a capital of ₹ 54,000 and ₹ 36,000 respectively. They admitted C for 1/3 rd share in the profits C brought proportionate amount of capital. The Capital brought in by C would be: a) ₹ 90,000 b) ₹ 45,000 c) ₹ 5,400 d) ₹ 36,00	1				
5	Amit, a partner in a partnership firm withdrew ₹ 7,000 in the beginning of each quarter. For how many months would interest on drawings be charged?	1				
6	Ankit, Unnati and Aryan are partners sharing profits in the ratio of 5:3:2. They decided to share future profits in the ratio of 2:3:5 with effect from 1 st April, 2018. They had the following balance in their balance sheet, passing necessary Journal Entry:	1				
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Particulars</th> <th style="text-align: right;">Amount(₹)</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Profit and loss Account (Dr)</td> <td style="text-align: right;">60,500</td> </tr> </tbody> </table>		Particulars	Amount(₹)	Profit and loss Account (Dr)	60,500	
Particulars	Amount(₹)					
Profit and loss Account (Dr)	60,500					
7	A and B are partners in a firm. They admit C as a partner with 1/5 th share in the profits of the firm. C brings ₹ 4,00,000 as his share of capital. Calculate the value of C's share of Goodwill on the basis of his capital, given that the combined capital of A and B after all adjustments is ₹ 10,00,000	1				
8	Riyansh, Garv and Kavleen were partners in a firm sharing profit and loss in the ratio of 8:7:5. On 2 nd November 2018, Kavleen died. Kavleen's share of profits till the date of her death was	1				

	calculated at ₹ 9,375. Pass the necessary journal entry.													
9	A and B are partners in a firm sharing profits and losses in the ratio of 3:2. On 1 st April, 2019 they decided to admit C their new ratio is decided to be equal. Pass the necessary journal entry to distribute Investment Fluctuation Reserve of ₹ 60,000 at the time of C's admission, when Investment appear in the books at ₹ 2,10,000 and its market value is ₹ 1,90,000.	1												
10	'Complete the following statement' When a liability is discharged by a partner, at the time of dissolution, Capital Account is credited because _____ .	1												
11	A and B are in partnership sharing profits and losses in the ratio of 3:2. They admit C into partnership with 1/5 th share which he acquires equally from A and B. Accountant has calculated new profit sharing ratio as 5:3:2. Is accountant correct?	1												
12	Wellness Co. Ltd. has issued 20,000, 9% Debentures of ₹ 100 each at a premium of 10% on 1 st April, 2018 redeemable as follows: 31 st March, 2021 – 10,000 debentures 31 st March, 2022 – 4,000 debentures 31 st March, 2023 – balance debentures. It transferred to Debentures Redemption Reserve the required amount as applicable rules of the Companies Act and Rules, 2014 on due date. How much amount will be transferred to General Reserve on 31 st March, 2021 a) ₹ 1,00,000 b) ₹ 2,50,000 c) ₹ 5,00,000 d) ₹ 20,00,000	1												
13	A portion of share capital that is reserved by the company and will be utilized only on the happening of winding up of the company is called _____ .	1												
14	<p>a) Calculate the amount of medicines consumed during the year ended 31st March, 2019</p> <table border="1"> <thead> <tr> <th>Particulars</th> <th>Amount (₹)</th> </tr> </thead> <tbody> <tr> <td>Opening Stock of Medicines</td> <td>50,000</td> </tr> <tr> <td>Closing stock of Medicines</td> <td>45,000 more than opening stock</td> </tr> <tr> <td>Amount paid for medicines during the year</td> <td>2,00,000</td> </tr> <tr> <td>Opening Creditors</td> <td>20,000</td> </tr> <tr> <td>Closing Creditors</td> <td>50% of opening creditors</td> </tr> </tbody> </table> <p style="text-align: center;">Or</p> <p>Distinguish between Income and Expenditure Account and Receipt and payment Account on basis of :-</p> <p>i. Nature</p> <p>ii. Nature of items</p> <p>iii. Period</p>	Particulars	Amount (₹)	Opening Stock of Medicines	50,000	Closing stock of Medicines	45,000 more than opening stock	Amount paid for medicines during the year	2,00,000	Opening Creditors	20,000	Closing Creditors	50% of opening creditors	<p style="text-align: right;">3</p> <p style="text-align: right;">3</p>
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15	<p>Danish, Ana and Pranjali are partners in a firm sharing profits and losses in the ratio of 5:3:2. Their books are closed on March 31st every year.</p> <p>Danish died on September 30th, 2019, The executors of Danish are entitled to:-</p> <p>i. His share of Capital i.e. ₹ 5,00,000 along-with his share of goodwill. The total goodwill of the firm was valued at ₹ 60,000.</p> <p>ii. His share of profit up to his date of death on the basis of sales till date of death. Sales for the year ended March 31, 2019 was ₹ 2,00,000 and profit for the same year was 10% on sales. Sales shows a growth trend of 20% and percentage of profit earning is reduced by 1%.</p> <p>iii. Amount payable to Danish was transferred to his executors.</p> <p>Pass necessary Journal Entries and show the workings clearly.</p>	4												

16	<p>Maanika, Bhavi and Komal are partners sharing profits in the ratio of 6:4:1. Komal is guaranteed a minimum profit of ₹ 2,00,000. The firm incurred a loss of ₹22,00,000 for the year ended 31st March,2018. Pass necessary journal entry regarding deficiency borne by Maanika and Bhavi and prepare Profit and Loss Appropriation Account.</p> <p style="text-align: center;">OR</p> <p>The partners of a firm, Alia, Bhanu and Chand distributed the profits for the year ended 31st March, 2017, ₹ 80,000 in the ratio of 3:3:2 without providing for the following adjustments:</p> <p style="margin-left: 40px;">a) Alia and Chand were entitled to a salary of ₹ 1,500 each p.m. b) Bhanu was entitled for a salary of ₹ 4,000 p.a.</p> <p>Pass the necessary Journal entry for the above adjustments in the books of the firm. Show workings clearly.</p>	4																																																				
17	<p>Bliss Products Ltd. registered with capital of ₹ 90,00,000 divided into 90,000 equity shares of ₹ 100 each. The company issued prospectus inviting applications for 50,000 equity shares of ₹ 100 each payable as ₹ 20 on application, ₹ 30 on allotment, ₹ 20 on first call and balance on second call.</p> <p>Applications were received for ₹40,000 shares. Raman to whom 1600 shares were allotted failed to pay final call money and these shares were forfeited. Of the forfeited shares, 600 shares were reissued to Sukhman, credited as fully paid for ₹ 90 per share.</p> <p>Present the Share Capital as per Schedule III of Companies Act, 2013</p>	4																																																				
18	<p>The firm of R, K and S was dissolved on 31.3.2019. Pass necessary journal entries for the following after various assets (other than cash and Bank) and the third party liabilities had been transferred to realisation account.</p> <p style="margin-left: 40px;">(i) K agreed to pay off his wife's loan of ₹ 6,000. (ii) Total Creditors of the firm were ₹ 40,000. Creditors worth ₹10,000 were given a piece of furniture costing ₹8,000 in full and final settlement. Remaining creditors allowed a discount of 10%. (iii) A machine that was not recorded in the books was taken over by K at ₹ 3,000 whereas its expected value was ₹ 5,000. (iv) The firm had a debit balance of ₹ 15,000 in the profit and loss A/c on the date of dissolution.</p>	4																																																				
19	<p>From the following Receipts and Payments Accounts of Rolaxe Club, for the year ended 31st March, 2019. Prepare Income and Expenditure Account for the year ended 31st March, 2019.</p> <p style="text-align: center;">Receipts and Payments Account for the year ended 31st March, 2019</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Receipts</th> <th style="width: 15%;">Amount (₹)</th> <th style="width: 35%;">Payments</th> <th style="width: 15%;">Amount (₹)</th> </tr> </thead> <tbody> <tr> <td>To Balance b/d</td> <td></td> <td>By Advertisement</td> <td>13,100</td> </tr> <tr> <td> Cash in hand</td> <td>17,050</td> <td>By Rent rates and Taxes</td> <td>14,000</td> </tr> <tr> <td> Current a/c with bank</td> <td>18,570</td> <td>By Repairs</td> <td>15,000</td> </tr> <tr> <td>To Donations</td> <td>20,000</td> <td>By Printing and Stationery</td> <td>16,000</td> </tr> <tr> <td>To Proceeds from charity</td> <td>16,200</td> <td>By Government Bonds</td> <td>5,000</td> </tr> <tr> <td>Show</td> <td></td> <td></td> <td></td> </tr> <tr> <td>To Subscription</td> <td>52,000</td> <td>By Telephone Expenses</td> <td>1,000</td> </tr> <tr> <td>To Life membership fees</td> <td>5,250</td> <td>By Furniture (purchased on 1st July, 2018)</td> <td>70,000</td> </tr> <tr> <td>To Entrance Fees</td> <td>6,000</td> <td>By Balance c/d</td> <td></td> </tr> <tr> <td>To Interest on investment @ 7% for the year.</td> <td>7,200</td> <td> Cash in hand</td> <td>3,170</td> </tr> <tr> <td></td> <td></td> <td> Cash at Bank</td> <td>5,000</td> </tr> <tr> <td></td> <td style="text-align: right;">1,42,270</td> <td></td> <td style="text-align: right;">1,42,270</td> </tr> </tbody> </table> <p>Additional Information :-</p> <p style="margin-left: 40px;">i) Depreciate furniture by 15% p.a. ii) There were 416 Life Members on 31.3.2018 the subscription payable by each</p>	Receipts	Amount (₹)	Payments	Amount (₹)	To Balance b/d		By Advertisement	13,100	Cash in hand	17,050	By Rent rates and Taxes	14,000	Current a/c with bank	18,570	By Repairs	15,000	To Donations	20,000	By Printing and Stationery	16,000	To Proceeds from charity	16,200	By Government Bonds	5,000	Show				To Subscription	52,000	By Telephone Expenses	1,000	To Life membership fees	5,250	By Furniture (purchased on 1 st July, 2018)	70,000	To Entrance Fees	6,000	By Balance c/d		To Interest on investment @ 7% for the year.	7,200	Cash in hand	3,170			Cash at Bank	5,000		1,42,270		1,42,270	6
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iii) member, to be a life time member is ₹ 125

Subscription outstanding on 31 st March, 2018	6,000
Subscription outstanding on 31 st March, 2019	7,000
Subscription received in advance on 31 st March, 2018	4,000
Subscription received in advance on 31 st March, 2019	5,000

- 20** Journalise the following transactions
- Mehar Ltd. issued ₹ 1,00,000, 12% Debentures of ₹ 100 each at a premium of 5% redeemable at a premium of 2%
 - 12 % Debentures were issued at a discount of 10% to a vendor of machinery for payment of ₹ 9,00,000
 - Issue of 10,000 11% debentures of ₹ 100 each as collateral in favour of State Bank of India. Company opted to pass necessary entry for issue of debentures.

Or

Faith and Belief Ltd has total redeemable debentures of ₹ 5,00,000. It decides to redeem these debentures in two instalments of ₹ 3,00,000 and ₹ 2,00,000 on December 31st 2018 and March 31st 2020 respectively. Assuming that the Company has sufficient funds in Debenture Redemption Reserve Account, pass necessary journal entries for the year ending March 31st 2020.

- 21** Gautam and Yashica are partners in a firm, sharing profits and losses in 3:1 respectively. The balance sheet of the firm as on 31st March 2018 was as follows:

**Balance Sheet
As at 31.3.2018**

Liabilities		Amt(₹)	Assets		Amt(₹)
Sundry creditors		50,000	Furniture		60,000
Bills payable		30,000	Stock		1,40,000
Capitals			Debtors		80,000
Gautam	4,00,000		Cash in hand		90,000
Yashica	1,00,000		Machinery		2,10,000
		5,00,000			
		5,80,000			5,80,000

Asma is admitted as a partner for 3/8th share in the profits with a capital of ₹2,10,000 and ₹50,000 for her share of goodwill. It was decided that:

- New profit sharing ratio will be 3:2:3
- Machinery will depreciated by 10% and Furniture by ₹5,000.
- Stock was re-valued at ₹ 2,10,000.
- Provision for doubtful debts is to be created at 10% of debtors.
- The capitals of all the partners were to be in the new profit sharing ratio on basis of capital of new partner any adjustment to be done through current accounts.

Prepare Revaluation Account, Partners Capital Account and the Balance Sheet of the new firm.

Or

X,Y and Z were in partnership sharing profits in proportion to their capitals. Their Balance Sheet as on 31st March, 2018 was as follows:

Liabilities	Amount (₹)	Particulars	Amount (₹)
Sundry Creditors	16,600	Cash	15,000
Workmen's Compensation Fund	9,000	Debtors 21,000 Less-Prov for Doubtful Debts (1400)	19,600
General Reserve	6,000	Stock	19,000

Capitals :		Machinery	58,000
X 90,000		Building	1,00,000
Y 60,000	1,80,000		
Z 30,000			
	2,11,600		2,11,600

On the above date, Y retired owing to ill health. The following adjustments were agreed upon for calculation of amount due to Y.

- Provision for Doubtful Debts to be increased to 10% of Debtors.
- Goodwill of the firm be valued at ₹ 36,000 and be adjusted into the Capital Accounts of X and Z, who will share profits in future in the ratio of 3:1.
- Included in the value of Sundry Creditors was ₹ 2,500 for an outstanding legal claim, which will not arise.
- X and Z also decided that the total capital of the new firm will be ₹ 1,20,000 in their profit sharing ratio. Actual cash to be brought in or to be paid off as the case may be.
- Y to be paid ₹ 9,000 immediately and balance to be transferred to his Loan Account.

Prepare Revaluation Account, Partner's Capital Accounts and Balance Sheet of the new firm after Y's retirement.

22 Saregama Ltd invited applications for issuing 80,000 equity shares of ₹ 100 each at a premium of ₹ 10. The amount was payable as follows **8**

On Application – ₹ 30

On allotment – ₹ 30 (including a premium of ₹ 10)

On 1st call – ₹ 30

On Final Call Balance

Applications of 1,20,000 shares were received. Allotment was made on pro rata basis to all applicants. Excess money received on application was adjusted on sums due on allotment.

Dhwani, who was allotted 1,600 shares, failed to pay allotment money and Sargam who applied for 6,000 shares did not pay 1st call money. These shares were forfeited immediately after 1st call. 2,000 of these shares (including all shares of Dhwani) were issued to Tarang for ₹ 95 per share as 80% paid up. Pass necessary journal entries in books of Saregama Ltd. by opening call in arrear, call in advance account, if final call has not been made.

Or

- X Ltd. forfeited 10 shares of ₹ 10 each, ₹ 7 called up on which the shareholder had paid application and allotment money of ₹ 5 per share. Out of these, 8 shares were re-issued to Y for ₹ 8 per share at ₹ 8 per paid up per share. Record the journal entries for forfeiture and reissue of shares by opening call in arrear, call in advance account.
- L Ltd forfeited Mr M's shares who has applied for 600 shares and was allotted 400 shares failed to pay allotment money of ₹ 4 per share including premium of ₹ 2 on which he had paid application money of ₹ 2 only. Pass necessary journal entries for forfeiture of shares by opening call in arrear, call in advance account.
- Crown Ltd forfeited 50 shares of ₹ 10 each, for non-payment of final call money of ₹ 3 per share. Out of these 20 shares were reissued to Taj at ₹ 8 per share. Record the journal entries for forfeiture and reissue of shares assuming that the company maintains call in arrear, call in advance account.

PART B

OPTION 1

(Analysis of Financial Statements)

23 What will be the effect on current ratio if a bills payable is discharged on maturity? **1**

24 The two basic measures of operational efficiency of a company are **1**

- Inventory Turnover Ratio and Working Capital Turnover Ratio
- Liquid Ratio and Operating Ratio
- Liquid Ratio and Current Ratio

	d) Gross Profit Margin and Net Profit Margin																																									
25	Debt Equity Ratio of a company is 1:2. Purchase of a Fixed asset for ₹ 5,00,000 on long term deferred payment basis will increase, decrease or not change the ratio?	1																																								
26	State the importance of financial analysis for labour unions.	1																																								
27	M/s Mevo and Sons.; a bamboo pens producing company, purchased a machinery for ₹ 9,00,000. It received dividend of ₹ 70,000 on investment in shares. The company also sold an old machine of the book value of ₹ 79,000 at a loss of ₹ 10,000. Compute Cash flow from Investing Activities.	1																																								
28	Common size analysis is also known as _____ analysis. (fill in the blank)	1																																								
29	While preparing Cash Flow Statement, match the following activities I. Payment of cash to acquire Debenture by an Investing Company II. Purchase of Goodwill III. Dividend paid by manufacturing company a. Financing activity b. Investing Activity c. Operating activity	1																																								
30	From the following details calculate Interest Coverage Ratio: Net profit after tax - ₹ 7,00,000 6% debentures of ₹ 20,00,000 Tax Rate 30% Or Under which major heads and sub-heads will the following items be placed in the Balance Sheet of the company as per Schedule III, Part I of the Companies Act, 2013? (i) Debentures with maturity period in current financial year (ii) Securities Premium Reserve (iii) Provident Fund	3																																								
31	Following information is extracted from the Statement of Profit and Loss of Crypto Finance Ltd. For the year ended 31 st March 2017 and 31 st March 2018. Fill in the missing figures Comparative Statement of Profit and Loss for the years ended 31st March 2017 and 31st March 2018	4																																								
	<table border="1"> <thead> <tr> <th>Particulars</th> <th>2016-17 (₹)</th> <th>2017-18 (₹)</th> <th>Absolute Increase/ Decrease (₹)</th> <th>Percentage Increase/ Decrease (%)</th> </tr> </thead> <tbody> <tr> <td>Revenue from Operations</td> <td>10,00,000</td> <td>?</td> <td>2,00,000</td> <td>20%</td> </tr> <tr> <td>Add other Income</td> <td>?</td> <td>60,000</td> <td>?</td> <td>20%</td> </tr> <tr> <td>Total Revenue</td> <td>?</td> <td>12,60,000</td> <td>?</td> <td>20%</td> </tr> <tr> <td>Less Employee Benefit Expenses</td> <td>50,000</td> <td>60,000</td> <td>10,000</td> <td>?</td> </tr> <tr> <td>Profit before tax</td> <td>10,00,000</td> <td>12,00,000</td> <td>2,00,000</td> <td>?</td> </tr> <tr> <td>Less Tax (50%)</td> <td>5,00,000</td> <td>6,00,000</td> <td>1,00,000</td> <td>?</td> </tr> <tr> <td>Profit after tax</td> <td>5,00,000</td> <td>6,00,000</td> <td>1,00,000</td> <td>20%</td> </tr> </tbody> </table>	Particulars	2016-17 (₹)	2017-18 (₹)	Absolute Increase/ Decrease (₹)	Percentage Increase/ Decrease (%)	Revenue from Operations	10,00,000	?	2,00,000	20%	Add other Income	?	60,000	?	20%	Total Revenue	?	12,60,000	?	20%	Less Employee Benefit Expenses	50,000	60,000	10,000	?	Profit before tax	10,00,000	12,00,000	2,00,000	?	Less Tax (50%)	5,00,000	6,00,000	1,00,000	?	Profit after tax	5,00,000	6,00,000	1,00,000	20%	
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	<p style="text-align: center;">Or</p> <p>From the following Balance Sheet of R Ltd., Prepare a Common Size Statement Balance Sheet As at 31st March, 2019.</p> <table border="1"> <thead> <tr> <th>Particulars</th> <th>Note no.</th> <th>31.3.2019 (₹)</th> <th>31.3.2018 (₹)</th> </tr> </thead> </table>	Particulars	Note no.	31.3.2019 (₹)	31.3.2018 (₹)																																					
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I EQUITY AND LIABILITIES			
1. Shareholder's Funds:			
a. Share Capital		5,00,000	4,00,000
b. Reserve and Surplus		1,60,000	1,20,000
2. Current Liabilities:			
a. Trade Payable		1,40,000	80,000
Total		8,00,000	6,00,000
II ASSETS			
1. Non-Current Assets:			
a. Fixed Assets:			
i. Tangible Assets		3,20,000	2,40,000
ii. Intangible Assets		40,000	60,000
2. Current Assets			
a. Inventories		1,60,000	60,000
b. Trade Receivables		2,40,000	2,00,000
c. Cash and Cash Equivalents		40,000	40,000
Total		8,00,000	6,00,000

32 From the following Balance Sheet of Dreams Converge Ltd as at 31.3.2018 and 31.3.2017; Calculate Cash from operating activities. Showing your workings clearly

6

Particulars	Note No.	31.3.2018 (₹)	31.3.2017 (₹)
I. EQUITY AND LIABILITY :			
1. Shareholder's Fund:		7,00,000	5,00,000
a. Share Capital			
b. Reserve and Surplus		3,50,000	2,00,000
2. Non-Current Liabilities:			
Long Term Borrowings		50,000	1,00,000
3. Current Liabilities:			
a. Trade Payables		1,22,000	1,05,000
b. Short term Provisions (Provision for tax)		50,000	30,000
TOTAL		12,72,000	9,35,000
		=====	=====
II. ASSETS :			
1. Non Current Assets:			
a. Fixed Assets:			
i. Tangible Assets	1	5,00,000	5,00,000
ii. Intangible Assets	2	95,000	1,00,000
b. Non-current Investments		1,00,000	Nil
2. Current Assets:			
a. Inventory		1,30,000	55,000
b. Trade Receivable		1,47,000	80,000
c. Cash and Cash Equivalents		3,00,000	2,00,000
TOTAL		12,72,000	9,35,000
		=====	=====

Notes

Note Number	Particulars	31.3.2018 (₹)	31.3.2017 (₹)
1	Tangible Assets:		
	Machinery	2,80,000	2,00,000
	Accumulated depreciation	(1,00,000)	(80,000)
		1,80,000	1,20,000

	Equipment	3,20,000	3,80,000	
		5,00,000	5,00,000	
2	Intangible Assets :			
	Goodwill	95,000	1,00,000	
Additional Information:				
i. Machinery of the book value of 80,000 (accumulated depreciation ₹ 20,000) was sold at a loss of ₹ 18,000				
PART B				
OPTION 2				
(Computerised Accounting)				
23	List any two attributes of information to be stored in Payroll data base.			1
24	Which of the following is not an advantage of computerised accounting system a) Efficient record keeping b) Ensures effective control over the system. c) Generation of reports and information in fixed format d) Economy in the processing of accounting data.			1
25	Arrange the following steps of constructing Bank Reconciliation Statements in Tally in chronological sequence a) Bringing up the monthly summary of Bank Book. Bringing the cursor to the first month and pressing enter. b) The display becomes Edit Screen in Reconciliation mode. The primary components are A column for the 'Bankers Date' Amounts not reflected in banks and balance as per banks c) This Brings up the vouchers for the month. Since this is a bank account, an additional button F5: reconcile will be visible on the right Press F5			1
26	Match the following			1
	a)	Single valued attributes	i) Attributes that can be divided in smaller sub parts to represent some more basic attribute with independent meaning	
	b)	Composite attribute	ii) Attributes that cannot be further sub divided in smaller parts.	
	c)	Atomic attributes	iii) Attributes with single value for an entity	
27	What is the activity sequence of the basic information processing mode			1
28	Differentiate between Generic software and Specific Software on basis of cost of installation and maintenance			1
29	Which of the following situations may not require the use of null value a) When a particular attribute does not apply to an entity. b) Value of an attribute is unknown, although it exist; c) Unknown because it does not exist. d) Multi value attributes may be nested (or grouped) to constitute complex ones.			1
30	Explain adjusting entries. Or Explain 'Transparency control' and 'Scalability' as features of Computerized Accounting System.			3
31	Name and explain the function which returns the future value of an investment which has constant payment and interest.			4
32	What is meant by conditional formatting? Give its two uses and three benefits.			6

Sample Question Paper
Class XII (2019-20)
Biology (044)

Time allowed: 3hrs.

Maximum Marks: 70

General Instructions:

1. There are a total of 27 questions and five sections in the question paper. All questions are compulsory.
2. Section A contains question numbers 1 to 5, multiple choice questions of one mark each.
Section B contains question numbers 6 to 12, short answer type I questions of two marks each.
Section C contains question numbers 13 to 21, short answer type II questions of three marks each.
Section D contains question number 22 to 24, case-based short answer type questions of three marks each (1+1+1).
Section E contains question numbers 25 to 27, long answer type questions of five marks each.
3. There is no overall choice in the question paper. However, internal choices are provided in two questions of one mark, one question of two marks, two questions of three marks and all three questions of five marks. An examinee is to attempt any one of the questions out of the two given in the question paper with the same question number.

SECTION – A

1. Androgens are synthesized by: 1
 - a.) Sertoli Cells
 - b.) Leydig cells
 - c.) Seminal vesicles
 - d.) Bulbourethral gland

OR

A procedure that finds use in testing for genetic disorders, but is also misused for foeticide is:

- a.) Lactational amenorrhea
 - b.) Amniocentesis
 - c.) Artificial insemination
 - d.) Parturition
-
2. Transplantation of tissues/organs to save certain patients often fails due to rejection of such tissues/organs in the patient's body. Which type of immune response is responsible for such rejection? 1
 - a.) auto-immune response
 - b.) humoral immune response
 - c.) physiological immune response
 - d.) cell-mediated immune response

OR

Which of the following are the correct reasons for Rheumatoid arthritis?

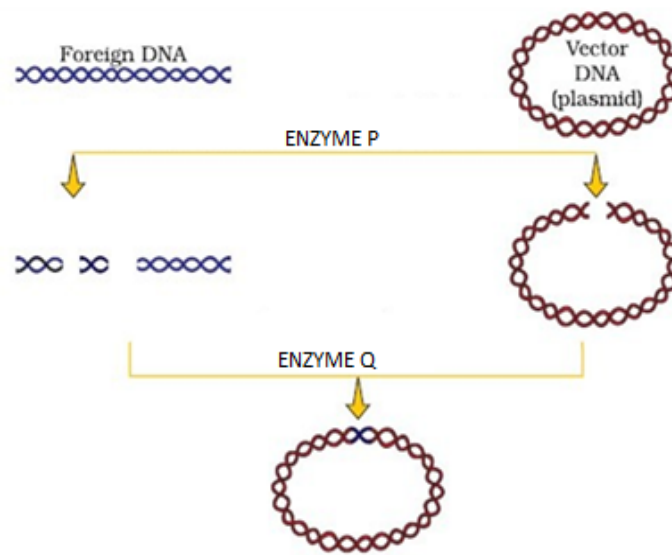
- i.) Lymphocytes become more active
- ii.) Body attacks self cells
- iii.) More antibodies are produced in the body
- iv.) The ability to differentiate pathogens or foreign molecules from self cells is lost

Choose the correct answer from the options given below:

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

3. Name the enzymes 'P' and 'Q' that carry out the following processes

1



- a.) Enzyme P-Exonuclease and Enzyme Q-Permease
- b.) Enzyme P-Exonuclease and Enzyme Q- Ligase
- c.) Enzyme P-Endonuclease and Enzyme Q- Permease
- d.) Enzyme P-Endonuclease and Enzyme Q-Ligase

4. A biotechnologist wanted to create a colony of *E.coli* possessing the plasmid pBR322, sensitive to Tetracycline. Which one of the following restriction sites would he use to ligate a foreign DNA?

1

- a.) Sal I
- b.) Pvu I
- c.) EcoRI
- d.) Hind III

5. Most important cause of biodiversity loss is:

1

- a.) Over exploitation of economic species
- b.) Habitat loss and fragmentation
- c.) Invasive species
- d.) Breakdown of plant-pollinator relationships

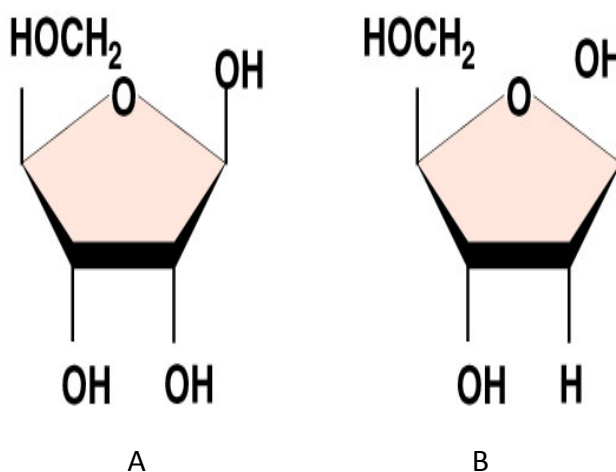
SECTION B

6. How does an encysted *Amoeba* reproduce on return of favourable conditions? 2

OR

What are gemmules and conidia? Name one organism each in which these are formed?

7. Name any two copper related IUD's. Explain how it acts as a contraceptive? 2
8. Why is it not possible to study the inheritance pattern of traits in human beings, the same way as it is done in pea plant? Name the alternate method employed for such an analysis of human traits. 2
9. Carefully examine structures A and B of pentose sugar given below. Which one is more reactive? Give reasons. 2



10. Name the technology and the procedure involved which can help a scientist recover virus free sugarcane plants from diseased canes for his crop breeding experiments. 2
11. Explain the events that occur in the host cell on introduction of nematode-resistant gene into the tobacco plant by using *Agrobacterium* vectors. 2
12. Construct a pyramid of biomass starting with phytoplankton. Label three trophic levels. Is the pyramid upright or inverted? Justify your answer. 2

SECTION C

13. Draw a well labelled diagram of L.S of a pistil showing the passage of growing of pollen tube up to its destination. 3
14. How does gain or loss of chromosome(s) takes place in humans? Describe one example each of chromosomal disorder along with the symptoms involving an autosome and a sex chromosome. 3

OR

A small stretch of DNA that codes for a polypeptide is given below

3'----- CAT CAT AGA TGA AAC----- 5'

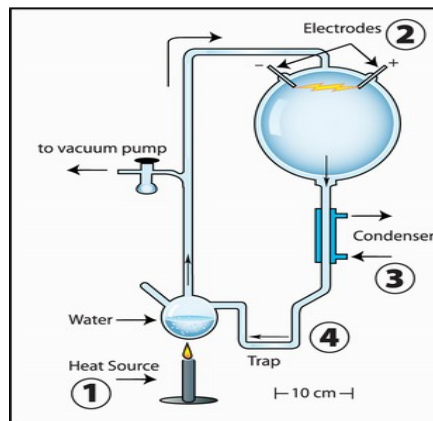
a.) Which type of mutation could have occurred in each type resulting in the following mistakes during replication of the above original sequence?

- i. 3`...CAT CAT AGA TGA ATC... .. 5`
- ii. 3`...CAT ATA GAT GAA AC... .. 5`

b.) How many amino acids will be translated in each of the above two cases?

15. "Apomixes is a form of asexual reproduction that mimics sexual reproduction in plants". Explain with the help of a suitable example. 3

16. 3



- a.) State the hypothesis which S.L. Miller tried to prove in the laboratory with the help of the set up given above.
- b.) Name the organic compound observed by him in the liquid water after running the above experiment.
- c.) A scientist simulated a similar set up and added CH₄, NH₃ and water vapour at 800 °C. Which important component is missing in his experiment?

17. a.) 3

FILL IN THE BLANKS PROVIDED		
Amino acid	Phe	Val
DNA Code in Gene	AAA	CAC
Codon in mRNA	(i)	(ii)
Anticodon in tRNA	(iii)	(iv)

- b.) A polypeptide consists of 14 different amino acids.
 - i) How many base pairs must be there in the processed mRNA that codes for this polypeptide?
 - ii) How many different types of tRNA are needed for the synthesis of this polypeptide?

18. How can inbreeding be both advantageous and disadvantageous in cattle breeding programme? (Mention any **two** advantages and **two** disadvantages) 3

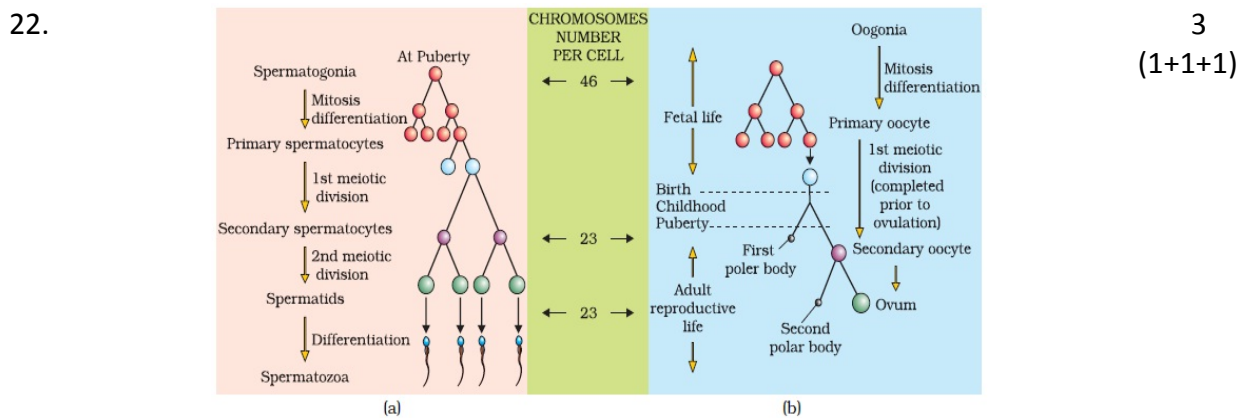
19. "Specific Bt Toxin gene is incorporated into cotton plant so as to control infestation of Bollworm". Mention the organism from which the gene was isolated and explain its mode of action. 3
20. State any two criteria for determining biodiversity hotspots. Name any two hotspots designated in India. 3

OR

Differentiate between in-situ and ex-situ approaches for conserving biodiversity. Give an example for each.

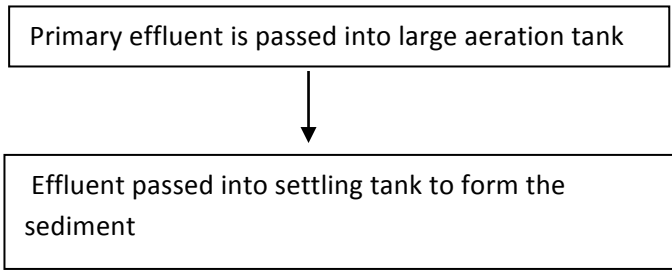
21. When the gene product is required in large amounts, so transformed bacteria with the plasmid inside the bacteria are cultured on a large scale in an industrial fermenter which then synthesizes its protein. This product is extracted from the fermenter for commercial use. 3
- a.) Why is the used medium drained out from one side while fresh medium is added from the other?
- b.) List any four optimum conditions for achieving the desired product in a bioreactor.

SECTION D



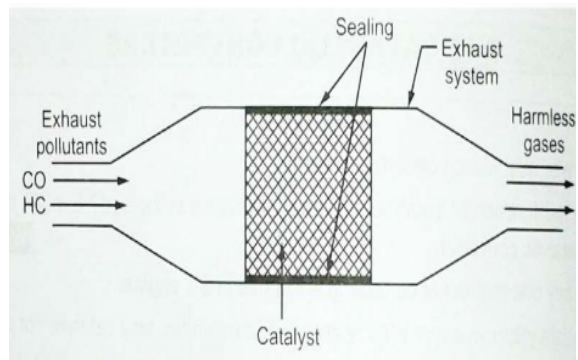
With reference to the above schematic diagram of Spermatogenesis (a) and Oogenesis(b), answer the following questions

- a.) About 300 million spermatozoa may be present in a human male ejaculation at one time. Calculate how many spermatocytes will be involved to produce this number of spermatozoa.
- b.) How many spermatids will be formed?
- c.) How many chromatids are found during Oogenesis in Primary oocyte and First polar body in a human female?
23. Large quantities of sewage is generated everyday in cities and towns, which is treated in Sewage Treatment Plants (STPs) to make it less polluting. Given below is the flow diagram of one of the stages of STP. Observe the given flow diagram and answer the questions accordingly. 3 (1+1+1)



- a.) Why primary effluent is passed into large aeration tanks?
- b.) What is the scientific term used for the sediment formed? Mention its significance.
- c.) Explain the final step resulting in the formation of biogas in the large tank before the treated effluent is released into water bodies.

24.



3
(1+1+1)

Observe the diagram of the catalytic converter and answer the questions which follow.

- a.) Name any two metals used as catalyst in the catalytic converter.
- b.) Name the gases released after passing the exhaust hydrocarbons through the catalytic converter.
- c.) Which other poisonous gas is missing in the exhaust pollutant of an automobile in the above diagram?

SECTION E

- 25. Certain phenotypes in human population are spread over a gradient and reflect the contribution of more than two genes. What is the term used for the types of inheritance? Describe it with the help of an example in human population.

5

OR

Summarize the process by which the sequence of DNA bases in Human Genome Project was determined using the method developed by Frederick Sanger. Name a free living non-pathogenic nematode who's DNA has been sequenced.

- 26. a.) What is mutation breeding? Give an example of a crop and disease to which resistance was induced by mutation.

5

b.) Differentiate between pisci culture and aquaculture.

OR

- a.) If a patient is advised anti-retroviral drug, which infection is he suffering from? Name the causative organism.
- b.) How do vaccines prevent subsequent microbial infections?
- c.) How a cancerous cell differs from the normal cell?
- d.) Many microbial pathogens enter the gut of humans along with food. Name the physiological barrier that protects the body from such pathogens.

27. "Indiscriminate human activities have strengthened the greenhouse effect resulting in Global Warming." Give the relative contribution of various Green House Gases in the form of a pie chart and explain the fate of the energy of sunlight reaching the earth's surface contributing towards Global Warming.

5

OR

Given below is a table depicting population interactions between species A and species B.

Type of interaction	Species A	Species B
(a)	(-)	(+)
(b)	(+)	(-)

Name the two types of population interactions (a) and (b) depicted in the above table.

Justify giving three reason, how the type of interaction (b) is important in an ecological context.

XXXXXXXXXX

SAMPLE PAPER XII 2019-20

CHEMISTRY

Time : 3 hrs.

M. Marks : 70

General Instructions

- (a) All questions are compulsory.
- (b) Section A: Q.no. 1 to 20 are very short answer questions (objective type) and carry 1 mark each.
- (c) Section B: Q.no. 21 to 27 are short answer questions and carry 2 marks each.
- (d) Section C: Q.no. 28 to 34 are long answer questions and carry 3 marks each.
- (e) Section D: Q.no. 35 to 37 are also long answer questions and carry 5 marks each.
- (f) There is no overall choice. However an internal choice has been provided in two questions of two marks, two questions of three marks and all the three questions of five marks weightage. You have to attempt only one of the choices in such questions.
- (g) Use log tables if necessary, use of calculators is not allowed.

SECTION - A

Read the given passage and answer the questions 1 to 5 that follow:

A Lead storage battery is the most important type of secondary cell having a lead anode and a grid of lead packed with PbO_2 as cathode. A 38% solution of sulphuric acid is used as electrolyte. (Density = 1.294 g mL^{-1}) The battery holds 3.5 L of the acid. During the discharge of the battery, the density of H_2SO_4 falls to 1.139 g mL^{-1} . (20% H_2SO_4 by mass)

- (1) Write the reaction taking place at the cathode when the battery is in use.
- (2) How much electricity in terms of Faraday is required to carry out the reduction of one mole of PbO_2 ?
- (3) What is the molarity of sulphuric acid before discharge?
- (4) Lead storage battery is considered a secondary cell. Why?
- (5) Write the products of electrolysis when dilute sulphuric acid is electrolysed using Platinum electrodes.

Questions 6 to 10 are one word answers:

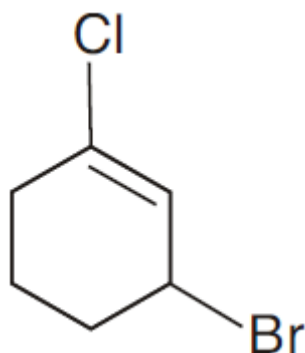
- (6) Name the substance used as depressant in the separation of two sulphide ores in Froth floatation method.
- (7) Name the unit formed by the attachment of a base to 1' position of sugar in a nucleoside.
- (8) Name the species formed when an aqueous solution of amino acid is dissolved in water?
- (9) What type of reaction occurs in the formation of Nylon 6,6 polymer?

(10) Which of the following compounds would undergo Cannizzaro reaction:

Benzaldehyde, Cyclohexanone, 2-Methylpentanal.

Questions 11 to 15 are multiple choice questions:

(11) The IUPAC name of the compound shown below is:



- (a) 2-bromo-6-chlorocyclohex-1-ene
- (b) 6-bromo-2-chlorocyclohexene
- (c) 3-bromo-1-chlorocyclohexene
- (d) 1-bromo-3-chlorocyclohexene

(12) When one mole of $\text{CoCl}_3 \cdot 5\text{NH}_3$ was treated with excess of silver nitrate solution, 2 mol of AgCl was precipitated. The formula of the compound is:

- (a) $[\text{Co}(\text{NH}_3)_5\text{Cl}_2]\text{Cl}$
- (b) $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$
- (c) $[\text{Co}(\text{NH}_3)_4\text{Cl}_2](\text{NH}_3)\text{Cl}$
- (d) $[\text{Co}(\text{NH}_3)_3\text{Cl}_3](\text{NH}_3)_2$

(13) The absorption maxima of several octahedral complex ions are as follows:

S.No	Compound	λ_{max} nm
1	$[\text{Co}(\text{NH}_3)_6]^{3+}$	475
2	$[\text{Co}(\text{CN})_6]^{3-}$	310
3	$[\text{Co}(\text{H}_2\text{O})_6]^{3+}$	490

The crystal field splitting is maximum for :

- (a) $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$
- (b) $[\text{Co}(\text{CN})_6]^{3-}$
- (c) $[\text{Co}(\text{NH}_3)_6]^{3+}$

- (d) All the complex ions have the same splitting, Δ_o ,
- (14) Predict the number of ions produced per formula unit in an aqueous solution of $[\text{Co}(\text{en})_3]\text{Cl}_3$
- (a) 4
 (b) 3
 (c) 6
 (d) 2
- (15) The incorrect statement about LDP is:
- (a) It is obtained through the free radical addition of ethene.
 (b) It consists of linear molecules.
 (c) It is obtained by the H-atom abstraction.
 (d) Peroxide is used as an initiator.

Questions 16 to 20 :

- (A) Both assertion and reason are correct statements, and reason is the correct explanation of the assertion.
 (B) Both assertion and reason are correct statements, but reason is not the correct explanation of the assertion.
 (C) Assertion is correct, but reason is wrong statement.
 (D) Assertion is wrong, but reason is correct statement.

16. Assertion: The two strands in double strand helix structure of DNA are complementary to each other

Reason: Disulphide bonds are formed between specific pairs of bases

17. Assertion: Glucose reacts with hydroxylamine to form an oxime and also adds a molecule of hydrogen cyanide to give cyanohydrin.

Reason: The carbonyl group is present in the open chain structure of glucose.

18. Assertion: The acidic strength of halogen acids varies in the order $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$

Reason: The bond dissociation enthalpy of halogen acids decreases in the order

19. **Assertion:** $\text{C}_2\text{H}_5\text{OH}$ is a weaker base than phenol but is a stronger nucleophile than phenol. (1)

Reason: In phenol the lone pair of electrons on oxygen is withdrawn towards the ring due to resonance.

20. **Assertion: Aryl halides undergo nucleophilic substitution reactions with ease.**

Reason: The carbon halogen bond in aryl halides has partial double bond character.

SECTION : B

21. Calculate the number of lone pairs on central atom in the following molecule and predict the geometry.

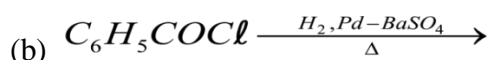


22. The rate of a reaction depends upon the temperature and is quantitatively expressed as

$$k = A e^{-E_a/RT}$$

- i) If a graph is plotted between $\log k$ and $1/T$, write the expression for the slope of the reaction?
- ii) If at under different conditions E_{a1} and E_{a2} are the activation energy of two reactions. If $E_{a1} = 40 \text{ J/mol}$ and $E_{a2} = 80 \text{ J/mol}$. Which of the two has a larger value of the rate constant?
23. The experimentally determined molar mass for what type of substances is always lower than the true value when water is used as solvent. Explain. Give one example of such a substance and one example of a substance which does not show a large variation from the true value.

24. **Write structure of the products formed:**



25. Draw one of the geometrical isomers of the complex $[\text{Pt}(\text{en})_2\text{Cl}_2]^{2+}$ which is optically inactive. Also write the name of this entity according to the IUPAC nomenclature.

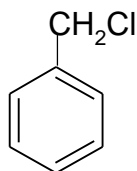
OR

Discuss the bonding in the coordination entity $[\text{Co}(\text{NH}_3)_6]^{3+}$ on the basis of valence bond theory. Also, comment on the geometry and spin of the given entity. (Atomic no. of Co = 27)

26. What is meant by Vapour phase refining? Write any one example of the process which illustrates this technique, giving the chemical equations involved.

OR

- Write and explain the reactions involved in the extraction of gold.
27. Which one of the following compounds will undergo hydrolysis at a faster rate by S_N1 mechanism? Justify.



or $CH_3CH_2CH_2Cl$

SECTION: C

28. Calculate the freezing point of a solution containing 0.5 g KCl (Molar mass = 74.5 g/mol) dissolved in 100 g water, assuming KCl to be 92% ionized.
 K_f of water = 1.86 K kg / mol.
29. For the reaction $A + B \rightarrow$ products, the following initial rates were obtained at various given initial concentrations

S.No.	[A] mol / L	[B] mol / L	Initial rate M/s
1.	0.1	0.1	0.05
2.	0.2	0.1	0.10
3.	0.1	0.2	0.05

Determine the half-life period.

OR

A first order reaction is 50 % complete in 50 minutes at 300 K and the same reaction is again 50 % complete in 25 minutes at 350 K. Calculate activation energy of the reaction.

30. Answer the following questions:
- (a) Which of the following electrolytes is most effective for the coagulation of AgI/Ag^+ sol?
 a. $MgCl_2$, K_2SO_4 , $K_4[Fe(CN)_6]$
- (b) What happens when a freshly precipitated $Fe(OH)_3$ is shaken with a little amount of dilute solution of $FeCl_3$.
- (c) Out of sulphur sol and proteins, which one forms macromolecular colloids?
31. Account for the following:
- a) Moist SO_2 decolourises $KMnO_4$ solution.

- b) In general interhalogen compounds are more reactive than halogens (except fluorine).
- c) Ozone acts as a powerful oxidizing agent
32. Identify the product formed when propan-1-ol is treated with Conc. H_2SO_4 at 413 K . Write the mechanism involved for the above reaction.
33. (a) Give chemical tests to distinguish between the following pairs of compounds:
- (i) Ethanal and Propanone.
- (ii) Pentan-2-one and Pentan-3-one.
- (b) Arrange the following compounds in increasing order of their acid strength: Benzoic acid, 4- Nitrobenzoic acid, 3,4-Dinitrobenzoic acid, 4- Methoxybenzoic acid.

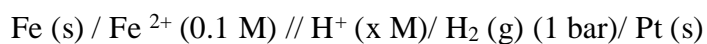
OR

Compare the reactivity of benzaldehyde and ethanal towards nucleophilic addition reactions. Write the cross aldol condensation product between benzaldehyde and ethanal.

34. Define and write an example for the following :
- (a) Broad spectrum antibiotics.
- (b) Analgesics

SECTION: D

35. (a) The e.m.f. of the following cell at 298 K is 0.1745 V



$$\text{Given : } E_{\text{Fe}^{2+}/\text{Fe}}^0 = -0.44\text{V}$$

Calculate the H^+ ions concentration of the solution at the electrode where hydrogen is being produced.

- (b) Aqueous solution of copper sulphate and silver nitrate are electrolysed by 1 ampere current for 10 minutes in separate electrolytic cells. Will the mass of copper and silver deposited on the cathode be same or different? Explain your answer.

OR

- (a) Calculate the degree of dissociation of 0.0024 M acetic acid if conductivity of this solution is $8.0 \times 10^{-5} \text{ S cm}^{-1}$.

$$\text{Given } \lambda_{H^+}^{\circ} = 349.6 \text{ S cm}^2 \text{ mol}^{-1}; \lambda_{CH_3COO^-}^{\circ} = 40.9 \text{ S cm}^2 \text{ mol}^{-1}$$

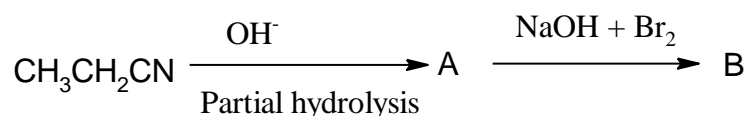
- (b) Solutions of two electrolytes 'A' and 'B' are diluted. The limiting molar conductivity of 'B' increases to a smaller extent while that of 'A' increases to a much larger extent comparatively. Which of the two is a strong electrolyte? Justify your answer.
36. An organic compound A' with molecular formula C_7H_7NO reacts with $Br_2/aqKOH$ to give compound B', which upon reaction with $NaNO_2$ & HCl at $0^{\circ}C$ gives C'. Compound C' on heating with CH_3CH_2OH gives a hydrocarbon D'. Compound B' on further reaction with Br_2 water gives white precipitate of compound E'. Identify the compound A, B, C, D & E; also justify your answer by giving relevant chemical equations.

OR

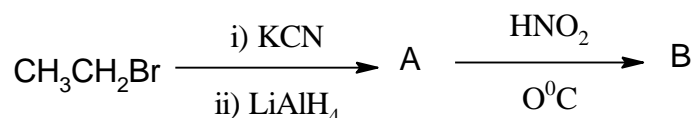
- (a) How will you convert:
- Aniline into Fluorobenzene.
 - Benzamide into Benzylamine.
 - Ethanamine to N,N-Diethylethanamine.

- (b) Write the structures of A and B in the following:

i)



ii)



37. (a) When a chromite ore (A) is fused with an aqueous solution of sodium carbonate in free excess of air, a yellow solution of compound (B) is obtained. This solution is filtered and acidified with sulphuric acid to form compound (C). Compound (C) on treatment with solution of KCl gives orange crystals of compound (D). Write the chemical formulae of compounds A to D.
- (b) Describe the cause of the following variations with respect to lanthanoids and actinoids:
- Greater range of oxidation states of actinoids as compared to lanthanoids.

- (ii) Greater actinoid contraction as compared to lanthanoid contraction.
- (iii) Lower ionisation enthalpy of early actinoids as compared to the early lanthanoids.

OR

(a) What happens when

- (i) Manganate ions (MnO_4^{2-}) undergoes disproportionation reaction in acidic medium?
- (ii) Lanthanum is heated with Sulphur?

(b) Explain the following trends in the properties of the members of the First series of transition elements:

- (i) $E^\circ(M^{2+}/M)$ value for copper is positive(+0.34 V) in contrast to the other members of the series.
- (ii) Cr^{2+} is reducing while Mn^{3+} is oxidising, though both have d^4 configuration.
- (iii) The oxidising power in the series increases in the order $VO_2^+ < Cr_2O_7^{2-} < MnO_4^-$.

Class XII
Computer Science - OLD (283)
Sample Question Paper 2019-20

Time allowed: 3 Hours

Max. Marks: 70

General Instructions:

- (a) All questions are compulsory.
- (b) Programming Language with C++
- (c) In Question 2(b, d), 3 and 4 has internal choices.

Q. No.	Part	Question Description	Marks
1	(a)	Write the type of C++ Operators (Arithmetic, Logical, and Relational Operators) from the following: (i) !(ii) !=(iii) &&(iv) %	(2)
	(b)	Observe the following program very carefully and write the name of those header file(s), which are essentially needed to compile and execute the following program successfully: <pre> void main() { char text[20], newText[20]; gets(text); strcpy(newText, text); for(int i=0; i<strlen(text); i++) if(text[i] == 'A') text[i] = text[i]+2; puts(text); } </pre>	(1)
	(c)	Rewrite the following C++ code after removing any/all Syntactical Error(s) with each correction underlined. Note: Assume all required header files are already being included in the program. <pre> #define float PI 3.14 void main() { float R=4.5,H=1.5; A=2*PI*R*H + 2*PIpow(R,2); cout<<'Area='<<A<<endl; } </pre>	(2)

(d)	<p>Find and write the output of the following C++ program code: Note: Assume all required header files are already being included in the program.</p> <pre> void main() { int Ar[] = { 6 , 3 , 8 , 10 , 4 , 6 , 7 } ; int *Ptr = Ar , I ; cout<<++*Ptr++ << '@' ; I = Ar[3] - Ar[2] ; cout<<++*(Ptr+I)<< '@' << "\n" ; cout<<++I + *Ptr++ << '@' ; cout<<*Ptr++ << '@' << '\n' ; for(; I >= 0 ; I -= 2) cout<<Ar[I] << '@' ; } </pre>	(3)
(e)	<p>Find and write the output of the following C++ program code:</p> <pre> typedef char STRING[80]; void MIXNOW(STRING S) { int Size=strlen(S); for(int I=0;I<Size;I+=2) { char WS=S[I]; S[I]=S[I+1]; S[I+1]=WS; } for (I=1;I<Size;I+=2) if (S[I]>='M' && S[I]<='U') S[I]='@'; } void main() { STRING Word="CBSEEXAM2019"; MIXNOW(Word); cout<<Word<<endl; } </pre>	(2)
(f)	<p>Observe the following program and find out, which output(s) out of (i) to (iv) will be expected from the program? What will be the minimum and the maximum value assigned to the variable Alter?</p> <p>Note: Assume all required header files are already being included in the program.</p> <pre> void main() { randomize(); int Ar[]={ 10,7}, N; </pre>	(2)

		<pre> int Alter=random(2) + 10 ; for (int C=0;C<2;C++) { N=random(2) ; cout<<Ar[N] +Alter<<"#"; } } </pre>	
		<p>(i) 21#20# (iii) 20#17#</p>	<p>(ii) 20#18# (iv) 21#17#</p>
2	(a)	What is a copy constructor? Illustrate with a suitable C++ example.	(2)
	(b)	<p>Write the output of the following C++ code. Also, write the name of feature of Object Oriented Programming used in the following program jointly illustrated by the Function 1 to Function 4.</p> <pre> void My_fun () // Function 1 { for (int I=1 ; I<=50 ; I++) cout<< "-" ; cout<<endl ; } void My_fun (int N) // Function 2 { for (int I=1 ; I<=N ; I++) cout<<"*" ; cout<<endl ; } void My_fun (int A, int B) // Function 3 { for (int I=1. ;I<=B ;I++) cout <<A*I ; cout<<endl ; } void My_fun (char T, int N) // Function 4 { for (int I=1 ; I<=N ; I++) cout<<T ; cout<<endl; } void main () { int X=7, Y=4, Z=3; char C='#' ; My_fun (C,Y) ; My_fun (X,Z) ; } </pre>	(2)
		OR	
		(b) Write any four differences between Constructor and Destructor function with respect to object oriented programming.	

(c)	<p>Define a class Ele_Bill in C++ with the following descriptions:</p> <p><u>Private members:</u></p> <p>Cname of type character array Pnumber of type long No_of_units of type integer Amount of type float. Calc_Amount() This member function should calculate the amount as No_of_units*Cost .</p> <p>Amount can be calculated according to the following conditions:</p> <p><u>No of units Cost</u></p> <table border="0"> <tr> <td>First 50 units</td> <td>Free</td> </tr> <tr> <td>Next 100 units</td> <td>0.80 @ unit</td> </tr> <tr> <td>Next 200 units</td> <td>1.00 @ unit</td> </tr> <tr> <td>Remaining units</td> <td>1.20 @ unit</td> </tr> </table> <p><u>Public members:</u></p> <ul style="list-style-type: none"> * A function Accept() which allows user to enter Cname, Pnumber, No_of_units and invoke function Calc_Amount(). * A function Display() to display the values of all the data members on the screen. 	First 50 units	Free	Next 100 units	0.80 @ unit	Next 200 units	1.00 @ unit	Remaining units	1.20 @ unit	(4)
First 50 units	Free									
Next 100 units	0.80 @ unit									
Next 200 units	1.00 @ unit									
Remaining units	1.20 @ unit									
(d)	<p>Answer the questions (i) to (iv) based on the following:</p> <pre> class Faculty { int FCode; protected: char FName[20]; public: Faculty(); void Enter(); void Show(); }; class Programme { int PID; protected: char Title[30]; public: Programme(); void Commence(); void View(); }; class Schedule: public Programme, Faculty { int DD,MM,YYYY; public: </pre>	(4)								

	<pre> Schedule(); void Start(); void View(); }; void main() { Schedule S; //Statement 1 _____ //Statement 2 } </pre>
(i)	Write the names of all the member functions, which are directly accessible by the object S of class Schedule as declared in main() function.
(ii)	Write the names of all the members, which are directly accessible by the memberfunction Start() of class Schedule.
(iii)	Write Statement 2 to call function View() of class Programme from the object S of class Schedule.
(iv)	What will be the order of execution of the constructors, when the object S of class Schedule is declared inside main()?
OR	
(d)	<p>Consider the following class State :</p> <pre> class State { protected : int tp; public : State() { tp=0;} void inctp() { tp++;}; int gettp(); { return tp; } }; </pre> <p>Write a code in C++ to publically derive another class ‘District’ with the following additional members derived in the public visibility mode.</p> <p><u>Data Members :</u> Dname string Distance float Population long int</p> <p><u>Member functions :</u> DINPUT() : To enter Dname, Distance and population DOUTPUT() : To display the data members on the screen.</p>

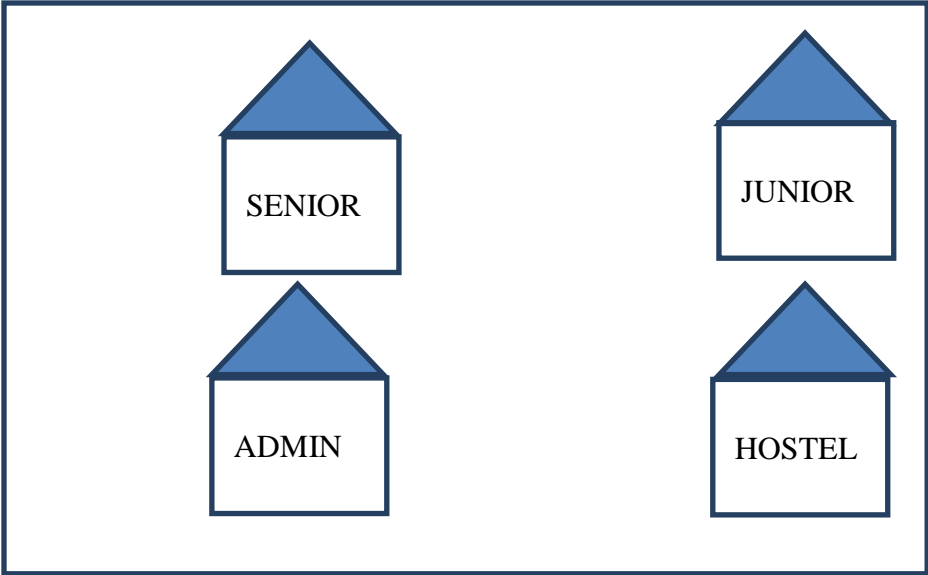
3	(a)	<p>Write a user-defined function <code>AddEnd4(int A[][4],int R,int C)</code> in C++ to find and display the sum of all the values, which are ending with 4 (i.e., unit place is 4).</p> <p>For example if the content of array is:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>24</td> <td>16</td> <td>14</td> </tr> <tr> <td>19</td> <td>5</td> <td>4</td> </tr> </table> <p>The output should be 42</p>	24	16	14	19	5	4	(2)
	24	16	14						
	19	5	4						
	OR								
(a)	Write a user defined function in C++ to find the sum of both left and right diagonal elements from a two dimensional array.								
(b)	<p>Write a user-defined function <code>EXTRA_ELE(int A[], int B[], int N)</code> in C++ to find and display the extra element in Array A. Array A contains all the elements of array B but one more element extra. (Restriction: array elements are not in order)</p> <p>Example If the elements of Array A is 14, 21, 5, 19, 8, 4, 23, 11 and the elements of Array B is 23, 8, 19, 4, 14, 11, 5 Then output will be 21</p>	(3)							
OR									
(b)	<p>Write a user defined function <code>Reverse(int A[],int n)</code> which accepts an integer array and its size as arguments(parameters) and reverse the array. Example : if the array is 10,20,30,40,50 then reversed array is 50,40,30,20,10</p>								
(c)	An array <code>S[10][30]</code> is stored in the memory along the column with each of its element occupying 2 bytes. Find out the memory location of <code>S[5][10]</code> , if element <code>S[2][15]</code> is stored at the location 8200.	(3)							
OR									
(c)	An array <code>A[30][10]</code> is stored in the memory with each element requiring 4 bytes of storage ,if the base address of A is 4500 ,Find out memory locations of <code>A[12][8]</code> , if the content is stored along the row.								
(d)	<p>Write the definition of a member function <code>Ins_Player()</code> for a class <code>CQUEUE</code> in C++, to add a Player in a statically allocated circular queue of <code>PLAYERS</code> considering the following code is already written as a part of the program:</p> <pre>struct Player { long Pid; char Pname[20];</pre>	(4)							

	<pre> }; const int size=10; class CQUEUE { Player Ar[size]; int Front, Rear; public: CQUEUE() { Front = -1; Rear = -1; } void Ins_Player(); // To add player in a static circular queue void Del_Player(); // To remove player from a static circular queue void Show_Player(); // To display static circular queue }; </pre>	
	OR	
	<p>(d) Write a function in C++ to delete a node containing Books information ,from a dynamically allocated stack of Books implemented with the help of the following structure:</p> <pre> struct Book { int BNo; char BName[20]; Book *Next; }; </pre>	
	<p>(e) Convert the following Infix expression to its equivalent Postfix expression, showing the stack contents for each step of conversion.</p> <p style="text-align: center;">A/B+C*(D-E)</p>	(2)
	OR	
	<p>Evaluate the following Postfix expression :</p> <p>4,10,5,+,* ,15,3,/,-</p>	
4	<p>(a) Write a function RevText() to read a text file “ Input.txt “ and Print only word starting with ‘I’ in reverse order .</p> <p>Example: If value in text file is: INDIA IS MY COUNTRY</p> <p>Output will be: AIDNI SI MY COUNTRY</p>	(2)
	OR	
	<p>(a) Write a function in C++ to count the number of lowercase alphabets present in a text file “BOOK..txt”.</p>	

(b)	<p>Write a function in C++ to search and display details, whose destination is "Cochin" from binary file "Bus.Dat". Assuming the binary file is containing the objects of the following class:</p> <pre> class BUS { int Bno; // Bus Number char From[20]; // Bus Starting Point char To[20]; // Bus Destination public: char * StartFrom (); { return From; } char * EndTo(); { return To; } void input() { cin>>Bno>>; gets(From); get(To); } void show() { cout<<Bno<< ":"<<From << ":" <<To<<endl; } }; </pre>	(3)
OR		
(b)	<p>Write a function in C++ to add more new objects at the bottom of a binary file "STUDENT.dat", assuming the binary file is containing the objects of the following class :</p> <pre> class STU { int Rno; char Sname[20]; public: void Enter() { cin>>Rno;gets(Sname); } void show() { cout << Rno<<sname<<endl; } }; </pre>	
(c)	<p>Find the output of the following C++ code considering that the binary file PRODUCT.DAT exists on the hard disk with a list of data of 500 products.</p> <pre> class PRODUCT { int PCode;char PName[20]; public: void Entry();void Disp(); }; void main() { fstream In; In.open("PRODUCT.DAT",ios::binary ios::in); PRODUCT P; In.seekg(0,ios::end); cout<<"Total Count: "<<In.tellg()/sizeof(P)<<endl; } </pre>	(1)

		<pre>In.seekg(70*sizeof(P)); In.read((char*)&P, sizeof(P)); In.read((char*)&P, sizeof(P)); cout<<"At Product:"<<In.tellg()/sizeof(P) + 1; In.close(); }</pre>																																																																							
		OR																																																																							
	(c)	Which file stream is required for seekg() ?																																																																							
5	(a)	<p>Observe the following table and answer the parts(i) and(ii) accordingly</p> <p>Table:Product</p> <table border="1"> <thead> <tr> <th>Pno</th> <th>Name</th> <th>Qty</th> <th>PurchaseDate</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Pen</td> <td>102</td> <td>12-12-2011</td> </tr> <tr> <td>102</td> <td>Pencil</td> <td>201</td> <td>21-02-2013</td> </tr> <tr> <td>103</td> <td>Eraser</td> <td>90</td> <td>09-08-2010</td> </tr> <tr> <td>109</td> <td>Sharpener</td> <td>90</td> <td>31-08-2012</td> </tr> <tr> <td>113</td> <td>Clips</td> <td>900</td> <td>12-12-2011</td> </tr> </tbody> </table>	Pno	Name	Qty	PurchaseDate	101	Pen	102	12-12-2011	102	Pencil	201	21-02-2013	103	Eraser	90	09-08-2010	109	Sharpener	90	31-08-2012	113	Clips	900	12-12-2011	(2)																																														
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	(i)	Write the names of most appropriate columns, which can be considered as candidate keys.																																																																							
	(ii)	What is the degree and cardinality of the above table?																																																																							
	(b)	<p>Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables.</p> <p style="text-align: center;">TRAINER</p> <table border="1"> <thead> <tr> <th>TID</th> <th>TNAME</th> <th>CITY</th> <th>HIREDATE</th> <th>SALARY</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>SUNAINA</td> <td>MUMBAI</td> <td>1998-10-15</td> <td>90000</td> </tr> <tr> <td>102</td> <td>ANAMIKA</td> <td>DELHI</td> <td>1994-12-24</td> <td>80000</td> </tr> <tr> <td>103</td> <td>DEEPTI</td> <td>CHANDIGARG</td> <td>2001-12-21</td> <td>82000</td> </tr> <tr> <td>104</td> <td>MEENAKSHI</td> <td>DELHI</td> <td>2002-12-25</td> <td>78000</td> </tr> <tr> <td>105</td> <td>RICHA</td> <td>MUMBAI</td> <td>1996-01-12</td> <td>95000</td> </tr> <tr> <td>106</td> <td>MANIPRABHA</td> <td>CHENNAI</td> <td>2001-12-12</td> <td>69000</td> </tr> </tbody> </table> <p style="text-align: center;">COURSE</p> <table border="1"> <thead> <tr> <th>CID</th> <th>CNAME</th> <th>FEES</th> <th>STARTDATE</th> <th>TID</th> </tr> </thead> <tbody> <tr> <td>C201</td> <td>AGDCA</td> <td>12000</td> <td>2018-07-02</td> <td>101</td> </tr> <tr> <td>C202</td> <td>ADCA</td> <td>15000</td> <td>2018-07-15</td> <td>103</td> </tr> <tr> <td>C203</td> <td>DCA</td> <td>10000</td> <td>2018-10-01</td> <td>102</td> </tr> <tr> <td>C204</td> <td>DDTP</td> <td>9000</td> <td>2018-09-15</td> <td>104</td> </tr> <tr> <td>C205</td> <td>DHN</td> <td>20000</td> <td>2018-08-01</td> <td>101</td> </tr> <tr> <td>C206</td> <td>O LEVEL</td> <td>18000</td> <td>2018-07-25</td> <td>105</td> </tr> </tbody> </table>	TID	TNAME	CITY	HIREDATE	SALARY	101	SUNAINA	MUMBAI	1998-10-15	90000	102	ANAMIKA	DELHI	1994-12-24	80000	103	DEEPTI	CHANDIGARG	2001-12-21	82000	104	MEENAKSHI	DELHI	2002-12-25	78000	105	RICHA	MUMBAI	1996-01-12	95000	106	MANIPRABHA	CHENNAI	2001-12-12	69000	CID	CNAME	FEES	STARTDATE	TID	C201	AGDCA	12000	2018-07-02	101	C202	ADCA	15000	2018-07-15	103	C203	DCA	10000	2018-10-01	102	C204	DDTP	9000	2018-09-15	104	C205	DHN	20000	2018-08-01	101	C206	O LEVEL	18000	2018-07-25	105	(4+2)
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	(i)	Display the Trainer Name, City & Salary in descending order of their Hiredate.																																					
	(ii)	To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.																																					
	(iii)	To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000.																																					
	(iv)	To display number of Trainers from each city.																																					
	(v)	SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN('DELHI', 'MUMBAI');																																					
	(vi)	SELECT DISTINCT TID FROM COURSE;																																					
	(vii)	SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;																																					
	(viii)	SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';																																					
6	(a)	State any one Distributive Law of Boolean Algebra and Verify it using truth table.	(2)																																				
	(b)	Draw the Logic Circuit of the following Boolean Expression: $((U + V).(U + W)). (V + W')$	(2)																																				
	(c)	Derive a Canonical SOP expression for a Boolean function F(X,Y,Z) represented by the following truth table: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> <th>F(X,Y,Z)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	X	Y	Z	F(X,Y,Z)	0	0	0	1	0	0	1	1	0	1	0	0	0	1	1	0	1	0	0	1	1	0	1	0	1	1	0	0	1	1	1	1	(1)
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	(d)	Reduce the following Boolean Expression to its simplest form using K-Map: F(X,Y,Z,W)= $\Sigma (0,1,2,3,4,5,8,10,11,14)$	(3)																																				

7	(a)	Arun opened his e-mail and found that his inbox was full of hundreds of unwanted mails. It took him around two hours to delete these unwanted mails and find the relevant ones in his inbox. What may be the cause of his receiving so many unsolicited mails? What can Arun do to prevent this happening in future?	(2)
	(b)	Assume that 50 employees are working in an organization. Each employee has been allotted a separate workstation to work. In this way, all computers are connected through the server and all these workstations are distributed over two floors. In each floor, all the computers are connected to a switch. Identify the type of network?	(1)
	(c)	Your friend wishes to install a wireless network in his office. Explain him the difference between guided and unguided media.	(1)
	(d)	Write the expanded names for the following abbreviated terms used in Networking and Communications: (i) CDMA (ii) HTTP (iii) XML (iv) URL	(2)
	(e)	<p>Multipurpose Public School, Bangluru is Setting up the network between its Different Wings of school campus. There are 4 wings named as SENIOR(S), JUNIOR(J), ADMIN(A) and HOSTEL(H).</p> <p>Multipurpose Public School, Bangluru</p> 	(4)

Distance between various wings are given below:

WingAtoWingS	100m
WingAtoWingJ	200m
WingAtoWingH	400m
WingStoWingJ	300m
WingStoWingH	100m
WingJtoWingH	450m

Number of Computers installed at various wings are as follows:

<u>Wings</u>	<u>NumberofComputers</u>
WingA	20
WingS	150
WingJ	50
WingH	25

- | | |
|-------|--|
| (i) | Suggest the best wired medium and draw the cable layout to efficiently connect various wings of Multipurpose Public School, Bangluru. |
| (ii) | Namethe most suitablewing wherethe Servershouldbe installed.Justifyyour answer. |
| (iii) | Suggest a device/software and its placement that would provide data security for the entire network of the School. |
| (iv) | Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphone/laptop users in the campus of Multipurpose Public School, Bangluru. |

Blue Print

Section-A Macro Economics					
Unit name	1 mark	3 Marks	4 Marks	6 marks	Total
National Income	1(R)	1(U)		1(A)	10
Money and Banking	1(U),1(A)		1(U)		6
Income determination	1(R), 1(U), 1(E)	1(A),		1(U)	12
Government Budget	1(U), 1(E)		1(R)		6
Balance of Payment	1(A), 1(E)		1(E)		6
Section A	$10*1=10$	$2*3=6$	$3*4=12$	$2*6=12$	40
Section- B Indian Economic Development					
Development Experience and Economic Reforms	1(R), 1(U), 1(A), 1(E)		1(R), 1(U)		12
Current Challenges facing Indian Economy	1(R), 1(U), 1(A), 1(E)	1(U), 1(A)		1(R), 1(E)	22
Development Experience of India	1(U), 1(E)		1(A)		6
Section B	$10*1=10$	$2*3=6$	$3*4=12$	$2*6=12$	40
Total	$20*1=20$	$4*3=12$	$6*4=24$	$4*6=24$	80

Creative Answer Type Questions: Q.No. – 29, 32, 34

Change in Questions:

Marks Category	2018-19	2019-20	Changes
1 mark	8	20	Increased by 12
3 marks	4	4	No change
4 marks	6	6	No change
6 marks	6	4	Decreased by 2
Total Questions	24	34	

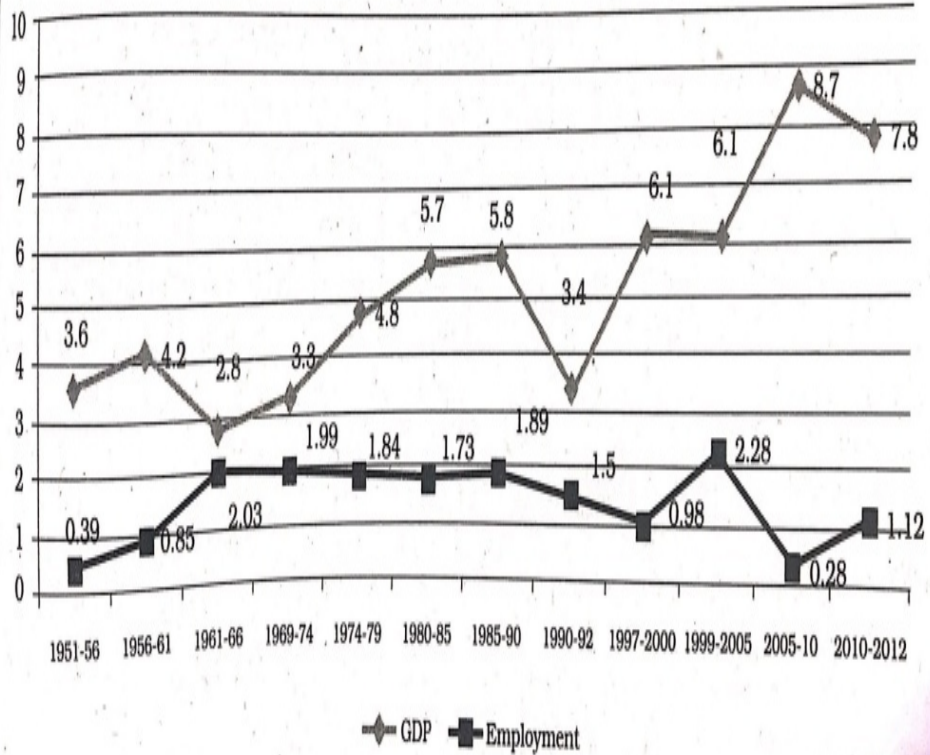
9	<p>From the set of statements given in Column I and Column II, choose the correct pair of statements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left;">Column I</th> <th style="width: 50%; text-align: left;">Column II</th> </tr> </thead> <tbody> <tr> <td>a) Export of software to France</td> <td>(i) Debit side of current account</td> </tr> <tr> <td>b) Import of Machinery from China</td> <td>(ii) Capital Account of Balance of Payments</td> </tr> <tr> <td>c) Remittances to relative staying abroad</td> <td>(iii) Debit side of Current Account of Balance of Payments</td> </tr> <tr> <td>d) Investment by Apple phones firm in India</td> <td>(iv) Credit side of Current Account of Balance of Payments</td> </tr> </tbody> </table>	Column I	Column II	a) Export of software to France	(i) Debit side of current account	b) Import of Machinery from China	(ii) Capital Account of Balance of Payments	c) Remittances to relative staying abroad	(iii) Debit side of Current Account of Balance of Payments	d) Investment by Apple phones firm in India	(iv) Credit side of Current Account of Balance of Payments	1
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b) Import of Machinery from China	(ii) Capital Account of Balance of Payments											
c) Remittances to relative staying abroad	(iii) Debit side of Current Account of Balance of Payments											
d) Investment by Apple phones firm in India	(iv) Credit side of Current Account of Balance of Payments											
10	<p>Government expenditure on Mid-Day Meal scheme running in government (state run) schools is a type of expenditure in government budget. (Fill up the blank with correct answer)</p>	1										
11	<p>“India's GDP is expected to expand 7.5% in 2019-20: World Bank” - <i>The Economic Times</i>. Does the given statement mean that welfare of people of India increase at the same rate? Comment with reason.</p>	3										
12	<p>Calculate the value of Marginal Propensity to Consume (MPC), if in an economy, autonomous consumption is ₹ 500 crores, ex-ante investments are ₹ 4000crores and equilibrium level of Income of the economy is ₹ 18,000 crores. Or Suppose in a hypothetical economy, the savings increase by ₹ 20 crores when national income increases by ₹ 100 crores. Compute the additional investments needed to attain an increase in national income by ₹ 6,000 crores?</p>	3										
13	<p>Discuss any one of the following functions of a central bank: a) As government’s bank b) Open market operations.</p>	4										
14	<p>“Foreign Institutional Investors (FIIs) remained net seller in the Indian capital markets over the last few weeks”. - <i>The Economic Times</i>. State and discuss the likely effects of the given statement on foreign exchange rate with reference to the Indian Economy. Or ‘Many large Multinational Corporations (MNCs) have recently shifted their investments from China and have started their production in India, thereby boosting the Make in India plans of the Government’. Presuming other factors being constant, discuss the effects of the given statement on Foreign Exchange rates with reference to the Indian Economy.</p>	4										
15	<p>Elaborate the objective of ‘reallocation of resources’ in the government budget.</p>	4										
16	<p>a) ‘Real Gross Domestic Product is a better indicator of economic growth than Nominal Gross Domestic Product’. Do you agree with the given statement? Support your answer with a suitable numerical example. b) Calculate ‘Depreciation on Capital Asset’ from the following data</p>	4										

	<table border="1" data-bbox="371 201 1166 359"> <thead> <tr> <th>S.no</th> <th>Particulars</th> <th>Amount (in ₹crores)</th> </tr> </thead> <tbody> <tr> <td>i.</td> <td>Capital value of the asset</td> <td>1,000</td> </tr> <tr> <td>ii.</td> <td>Estimated life of the asset</td> <td>20 years</td> </tr> <tr> <td>iii.</td> <td>Scrap Value</td> <td>Nil</td> </tr> </tbody> </table> <p style="text-align: center;">Or</p> <p>a) ‘Circular flow of income in a two sector economy is based on the axiom that one’s expenditure is other’s income’. Do you agree with the given statement? Support your answer with valid reasons.</p> <p>b) Calculate compensation of employees from the following data:</p> <table border="1" data-bbox="371 611 1179 953"> <thead> <tr> <th>S.no</th> <th>Particulars</th> <th>Amount (in ₹crores)</th> </tr> </thead> <tbody> <tr> <td>i.</td> <td>Profits after tax</td> <td>20</td> </tr> <tr> <td>ii.</td> <td>Interest</td> <td>45</td> </tr> <tr> <td>iii.</td> <td>Gross Domestic Product at Market Price</td> <td>200</td> </tr> <tr> <td>iv.</td> <td>Goods and Services Tax</td> <td>10</td> </tr> <tr> <td>v.</td> <td>Consumption of Fixed Capital</td> <td>50</td> </tr> <tr> <td>vi.</td> <td>Rent</td> <td>25</td> </tr> <tr> <td>vii.</td> <td>Corporate Tax</td> <td>5</td> </tr> </tbody> </table>	S.no	Particulars	Amount (in ₹crores)	i.	Capital value of the asset	1,000	ii.	Estimated life of the asset	20 years	iii.	Scrap Value	Nil	S.no	Particulars	Amount (in ₹crores)	i.	Profits after tax	20	ii.	Interest	45	iii.	Gross Domestic Product at Market Price	200	iv.	Goods and Services Tax	10	v.	Consumption of Fixed Capital	50	vi.	Rent	25	vii.	Corporate Tax	5	<p>2</p> <p>3</p> <p>3</p>
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17	‘An economy is operating at under-employment level of income’. What is meant by the given statement? Discuss one fiscal measure and one monetary measure to tackle the situation.	6																																				
SECTION-B (Indian Economic Development)																																						
18	Name any two taxes which were subsumed in Goods and Services Tax (GST).	1																																				
19	State whether the following statement is true or false: ‘The latest demonetization of currency was undertaken by the Government of India on November 8, 2016’.	1																																				
20	Identify the correct sequence of alternatives given in Column II by matching them with respective terms in Column I:	1																																				
<table border="1" data-bbox="261 1365 1219 1738"> <thead> <tr> <th style="text-align: center;">Column – I</th> <th style="text-align: center;">Column – II</th> </tr> </thead> <tbody> <tr> <td>A. Land Ceiling</td> <td>i. Increase in production of food grain using high yielding variety seeds</td> </tr> <tr> <td>B. Land reforms</td> <td>ii. Portion of agricultural produce sold in the market</td> </tr> <tr> <td>C. Green Revolution</td> <td>iii. Fixing the maximum limit of land holding for an individual.</td> </tr> <tr> <td>D. Marketed Surplus</td> <td>iv. Change in the ownership of land (land to tillers)</td> </tr> </tbody> </table>			Column – I	Column – II	A. Land Ceiling	i. Increase in production of food grain using high yielding variety seeds	B. Land reforms	ii. Portion of agricultural produce sold in the market	C. Green Revolution	iii. Fixing the maximum limit of land holding for an individual.	D. Marketed Surplus	iv. Change in the ownership of land (land to tillers)																										
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21	Agriculture marketing does not comprise of (Choose the correct alternative) a) Transportation of the produce to the market place for sale.																																					

	b) Grading of the produce according to the quality. c) Storage of the produce for sale in future. d) Credit taken to meet expenditure on agriculture.	1										
22	Undertype of unemployment, marginal product gained by employing one additional unit of labour is zero. (Fill up the blank with correct answer) Or an indicator which is used for analyzing the employment situation of a country. (Fill up the blank with correct answer)	1										
23	In 1955, Karve committee was constituted for aiming the..... (Fill up the blank with correct answer)	1										
24	Identify the correct sequence of alternatives given in Column II by matching them with respective terms in Column I <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Column – I</th> <th style="text-align: center;">Column -II</th> </tr> </thead> <tbody> <tr> <td>A. Study Group formed by Planning Commission for Poverty</td> <td>i. 2005</td> </tr> <tr> <td>B. ‘Task Force on Projections of the Minimum Needs and Effective Consumption Demand’</td> <td>ii. 1962</td> </tr> <tr> <td>C. Mahatma Gandhi National Rural Employment Guarantee Act</td> <td>iii. 2014</td> </tr> <tr> <td>D. Jan DhanYojana</td> <td>iv. 1979</td> </tr> </tbody> </table> Choose the correct alternative: a) ii , iii , iv , i b) iii , ii , i , iv c) i , ii , iii , iv d) ii , iv , i , iii	Column – I	Column -II	A. Study Group formed by Planning Commission for Poverty	i. 2005	B. ‘Task Force on Projections of the Minimum Needs and Effective Consumption Demand’	ii. 1962	C. Mahatma Gandhi National Rural Employment Guarantee Act	iii. 2014	D. Jan DhanYojana	iv. 1979	1
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25	Solar energy can be converted into electricity with the help of (Photovoltaic cell/Lithium cells). (Fill up the blank with correct alternative)	1										
26	Arrange the following events of China in chronological order and choose the correct alternative: i. Great Proletarian Cultural Revolution ii. Great Leap Forward campaign iii. Introduction of Economic Reforms iv. First five year plan Choose the correct alternative: a) ii, iv, iii, i b) iv, ii, i, iii c) ii, iv, i, iii d) iv, i, ii, iii	1										
27	Introduction of Economic Reform in Pakistan took place in..... (Choose the correct alternative) a) 1978 b) 1980 c)1988 d) 1991	1										

28	<p>“Recently Indians have drifted away from the traditional knowledge and practices and caused large scale damage to environment”.</p> <p>Explain how, adopting the traditional practices can be helpful in achieving the objective of sustainable development?</p> <p style="text-align: center;">Or</p> <p>‘Power sector in India has major issues with its installed capacity’. Discuss the given statement.</p>	3																
29	<p>‘Education Commission 1964-66 had recommended that at least 6 per cent of GDP must be spent on education’. How far India has been able to achieve the said goal?</p>	3																
30	<p>‘The opening up of the Indian Economy has led to a rapid increase in Foreign Direct Investments and Foreign Exchange Reserves of the country’. Defend or refute the given statement.</p>	4																
31	<p>Define the following terms</p> <p>a) Disinvestment b) Import Substitution</p> <p style="text-align: center;">OR</p> <p>Define the following terms</p> <p>a) Outsourcing b) Quota</p>	4																
32	<p>Answer the following questions on the basis of the following data:</p> <p>a) Comment upon the population growth rates among the three countries.</p> <p>b) Which country has most skewed in sex ratio?</p> <table border="1" data-bbox="261 976 1146 1203"> <thead> <tr> <th>Country</th> <th>Estimated Population (in million)</th> <th>Annual Growth of Population (in %)</th> <th>Sex Ratio</th> </tr> </thead> <tbody> <tr> <td>India</td> <td>1311</td> <td>1.2</td> <td>929</td> </tr> <tr> <td>China</td> <td>1371</td> <td>0.5</td> <td>941</td> </tr> <tr> <td>Pakistan</td> <td>188</td> <td>2.1</td> <td>947</td> </tr> </tbody> </table> <p>Source: World Development Indicators, 2015, www.worldbank.org</p>	Country	Estimated Population (in million)	Annual Growth of Population (in %)	Sex Ratio	India	1311	1.2	929	China	1371	0.5	941	Pakistan	188	2.1	947	3 1
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33	<p>“Rural Economic development is essential for Indian Economic development”. Do you agree with the given statement? Support your answer with valid reasons.</p>	6																
34	<p>‘In spite of the increase in public health expenditure Indian Health System is an ailing system in itself’. Defend the statement citing any three major problems of Health sector in India.</p> <p style="text-align: center;">Or</p> <p>Study the following chart showing the Growth of Employment and Gross Domestic Product and analyse the trend of the two variables from 1990-2012.</p>	6																

Growth of Employment and Gross Domestic Product, 1951-2012 (%)



SAMPLE QUESTION PAPER (2019-2020)

GEOGRAPHY (029)

CLASS-XII

Time: 3hours

Max. Marks 70

General Instructions:

- i. There are 30 questions in all.
- ii. All questions are compulsory.
- iii. Question numbers 1 to 18 are Multiple Choice Questions (MCQs) carrying 1 mark each. Write only the correct answer in your answer sheets.
- iv. Question numbers 19 to 22 are short answer questions carrying 3 marks each. Answer to each of these questions should not exceed 80-100 words.
- v. Question numbers 23 to 28 are long answer questions carrying 5 marks each. Answer to each of these questions should not exceed 150 words.
- vi. Question numbers 29 and 30 are related to identification or location and labeling of geographical features on maps, carrying 5 marks each.
- vii. Outline map of India and World provided to you must be attached within your answer book.
- viii. Use of template or stencils for drawing outline maps is allowed.

SECTION A		
Q1	<p>Which one of the following is the largest linguistic group of India?</p> <ol style="list-style-type: none">a. Sino – Tibetanb. Indo – Aryanc. Austricd. Dravidian <p style="text-align: center;">OR</p> <p>Which one of the following periods had witnessed rapid growth of population.</p> <ol style="list-style-type: none">a. Before 1921b. 1921 - 1951c. 1951 – 1981d. After 1981	1
Q2	<p>Which one of the following is the main reason for male migration in India?</p> <ol style="list-style-type: none">a. Educationb. Businessc. Work and employmentd. Marriage	1

Q3	<p>Identify the country with the highest sex ratio in the world</p> <ul style="list-style-type: none"> a. Latvia b. United Arab Emirates c. Japan d. France <p>OR</p> <p>Which one of the following figures represents the working age group of the population?</p> <ul style="list-style-type: none"> a. 15 to 65 years b. 15 to 64 years c. 15 to 66 years d. 15 to 59 years 	1
Q4	<p>Which one of the following group of cities have been arranged in the sequence of their ranks i.e., 1,2,3 and 4 in size ?</p> <ul style="list-style-type: none"> a. Greater Mumbai, Bangaluru, Kolkata, Chennai. b. Delhi, Greater Mumbai, Chennai, Kolkata. c. Kolkata, Greater Mumbai, Chennai, Delhi. d. Greater Mumbai, Kolkata, Delhi, Chennai. <p>OR</p> <p>Palli and nagla belong to which one of the following rural settlements-</p> <ul style="list-style-type: none"> a. Clustered b. Semi-clustered c. Hamleted d. Dispersed or isolated. 	1
Q5	<p>Which one of the following is not a Push factor?</p> <ul style="list-style-type: none"> a. Water Shortage b. Medical/Educational facilities c. Unemployment d. Epidemics 	1
Q6	<p>Which one of the following best is the best description of Development?</p> <ul style="list-style-type: none"> a. An increase in size b. A constant in size c. A positive change in quality d. A simple change in quality 	1

Q7	Which one of the following is not a Plantation Crop? a. Coffee b. Sugarcane c. Wheat d. Rubber	1
Q8	Which one of the following types of cultivation was developed by European colonists? a. Kolkhoz b. Mixed Farming c. Viticulture d. Plantation	1
Q9	Which one of the following does not follow Monoculture? a. Commercial Grain Farming b. Plantation Agriculture c. Mixed Farming d. Dairy Farming	1
Q10	Which one of the following forms of settlement develops along either side of roads, rivers or canals? a. Circular b. Linear c. Cross Shaped d. Square	1
Q11	Which one of the following types of economic activities dominates in all rural settlements? a. Primary b. Tertiary c. Secondary d. Quaternary	1
Q12	The first urban settlement to reach a population of one million was: a. Paris b. New York c. London d. Canberra	1

Q13	Identify the land locked harbor from the followings- a. Vishakhapatnam b. Mumbai c. Ennor d. Haldia	1
Q14	Which one of the following is the longest national highway of India? a. NH-1 b. NH-7 c. NH-6 d. NH-8	1
Q15	Complete the following table by writing appropriate answer: <div style="text-align: center; margin: 20px 0;"> <pre> graph TD A[Means of Communications] --> B[] A --> C[] B --> D["Letter, Telephone, Telegram, Fax, e-mail, Internet, etc."] C --> E["Radio, Television, Cinema, Satellite, Newspaper, Magazines, Public meetings, Seminar and conferences"] </pre> </div>	1
Q16	Name the Headquarters of Northern Railway Zone of India a. Lucknow b. Kanpur c. New Delhi d. Chandigarh	1
Q17	Land degradation in irrigated areas is caused by which of following reason ? a. Gully erosion b. Wind erosion c. Salinization of soil d. Siltation of land	1
Q18	South-West monsoon in India coincides with which cropping season? a. Kharif b. Rabi	1

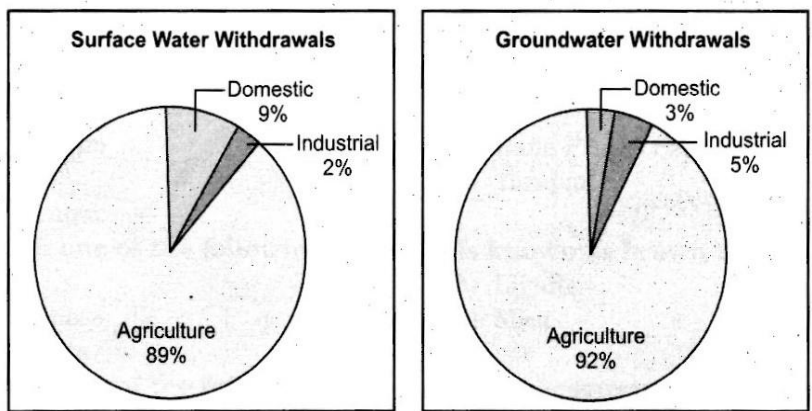
	c. Zaid d. None of the above	
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SECTION B

Q19	“The chief gateways of the world of international trade are the harbours and ports”. Justify the statement with examples.	3
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Q20	How is Possibilism different from Environmental Determinism? Explain with suitable Examples.	3
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Q21	Study the pie-chart given below and answer the questions that follow-	3
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Source : *Earth Trend 2001, World Resource Institute, as given in Govt. of India (2002) Report*
Fig. : Sectoral Usage of Surface Water **Fig.** Sectoral Usage of Groundwater.

- Which sector's share is the maximum in the usage of surface and ground water?
- What is the percentage of agricultural sector in the usage of surface water and Ground water?
- Why the development of irrigation was assigned a very high priority in the Five years plans?

For visually impaired candidates (in place of Q. No. 21)

- Name the two sources where water is available for irrigation.
- Which sector of economy uses the maximum amount of water in our country?
- Why is development of irrigation was assigned a very high priority in five years plans?

1
1
1

Q22	<p>'Development has direct bearings on the deteriorating human conditions'. How poor people are more affected in this process?</p> <p style="text-align: center;">OR</p> <p>Describe the concept of Human Development as defined by United Nations Development Programme (UNDP)</p>	3
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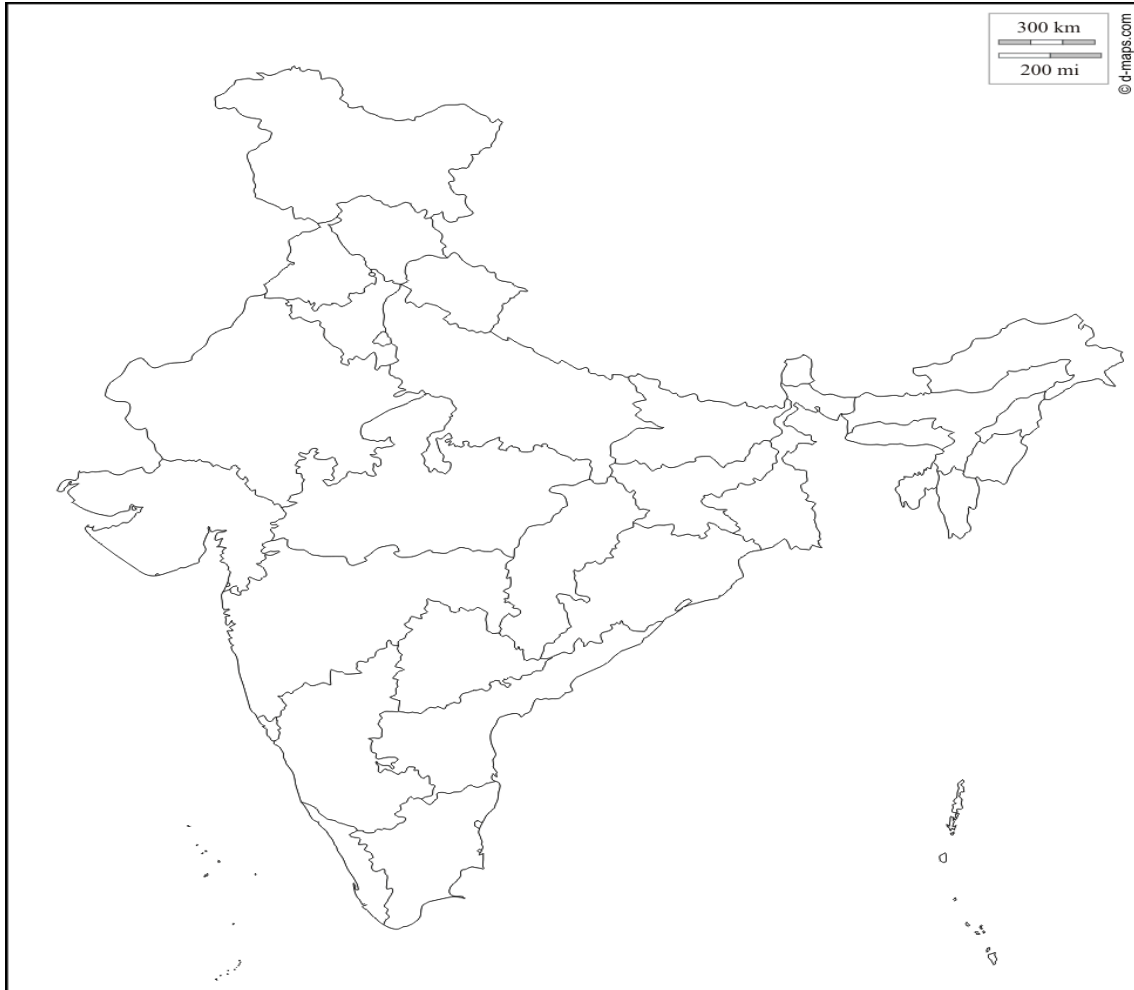
SECTION C

Q23	<p>The challenge of sustainable development requires integration of quest for economic development with environmental concerns. Comprehend the statement in relation to the development of non conventional sources of energy in India by giving suitable example.</p> <p style="text-align: center;">OR</p> <p>Nuclear energy is replacing the conventional sources in India. Do you think it as a viable energy source of energy in future keeping in view the availability of nuclear minerals in India.</p>	5
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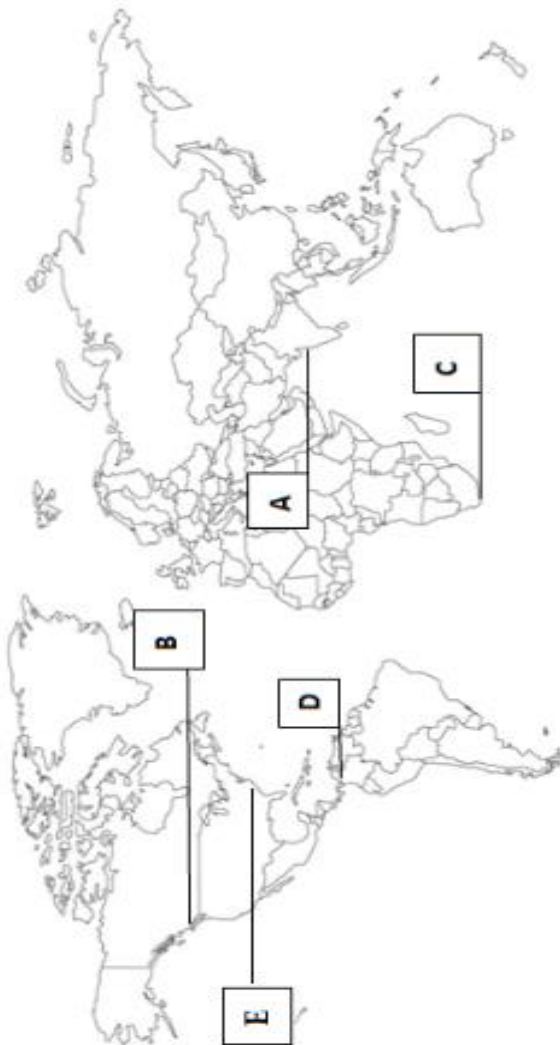
Q24	<p>Study the map given below and answer the questions that follows-</p> <div style="text-align: center;"> </div>	3+2=5
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	<p>a. What is the difference between the two areas shown as 'Under Flow' and 'Under Lift' system of irrigation.</p> <p>b. Name any four districts that are benefited by the command area of the canal in stage I and stage II</p> <p>For visually impaired candidates (in place of Q. No. 24)</p> <p>a. How has the introduction of Indira Gandhi Canal irrigation in the dry lands of Rajasthan influenced the environmental conditions of the region positively? Explain in three points.</p> <p>b. Name any four districts benefitted by the Indira Gandhi Canal irrigation system.</p>	<p>3</p> <p>2</p>
Q25	<p>Classify industries on the basis of the raw material used. Explain each of them with examples.</p> <p style="text-align: center;">OR</p> <p>Explain why high-tech industries in many countries are being attracted to the peripheral areas of major metropolitan centres?</p>	5
Q26	<p>"The modern economic development in the world is mainly the result of the development of Quaternary Service." Explain the statement with suitable examples.</p>	5
Q27	<p>What are the modes by which cyber space will expand the contemporary economic and social space of humans?</p> <p style="text-align: center;">OR</p> <p>Which are the major regions of the world having a dense network of airways? Explain with examples.</p>	5
Q28	<p>Land degradation caused by human made processes are more harmful than natural processes in India. Analyse the statement with suitable examples.</p> <p style="text-align: center;">OR</p> <p>How has Noise pollution become hazardous in many big cities of India? Explain by giving suitable examples.</p>	5
Q29	<p>On the outline map of India mark and indicate the following features (any five)</p> <ol style="list-style-type: none"> State having highest urban population Software technology park of Telangana International airport located in Assam Eastern terminal point of Golden Quadrilateral Copper mine located in Rajasthan Bauxite mines in Odisha Southern terminal station of North-South corridor. 	5

Q29



Q30



Class – XII
MATHEMATICS- 041
SAMPLE QUESTION PAPER 2019-20

Time: 3 Hrs.

Maximum Marks: 80

General Instructions:

- (i) All the questions are compulsory.
- (ii) The question paper consists of 36 questions divided into 4 sections A, B, C, and D.
- (iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each.
- (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions.
- (v) Use of calculators is not permitted.

SECTION A		
Q1 - Q10 are multiple choice type questions. Select the correct option		
1	If A is any square matrix of order 3×3 such that $ A = 3$, then the value of $ \text{adj}A $ is ? (a) 3 (b) $\frac{1}{3}$ (c) 9 (d) 27	1
2	Suppose P and Q are two different matrices of order $3 \times n$ and $n \times p$, then the order of the matrix $P \times Q$ is? (a) $3 \times p$ (b) $p \times 3$ (c) $n \times n$ (d) 3×3	1
3	If $(2\hat{i} + 6\hat{j} + 27\hat{k}) \times (\hat{i} + p\hat{j} + q\hat{k}) = \vec{0}$, then the values of p and q are ? (a) $p=6, q=27$ (b) $p=3, q=\frac{27}{2}$ (c) $p=6, q=\frac{27}{2}$ (d) $p=3, q=27$	1
4	If A and B are two events such that $P(A)=0.2$, $P(B)=0.4$ and $P(A \cup B)=0.5$, then value of $P(A/B)$ is ? (a) 0.1 (b) 0.25 (c) 0.5 (d) 0.08	1
5	The point which does not lie in the half plane $2x + 3y - 12 \leq 0$ is (a) (1,2) (b) (2,1) (c) (2,3) (d) (-3,2)	1
6	If $\sin^{-1} x + \sin^{-1} y = \frac{2\pi}{3}$, then the value of $\cos^{-1} x + \cos^{-1} y$ is _____ (a) $\frac{2\pi}{3}$ (b) $\frac{\pi}{3}$ (c) $\frac{\pi}{2}$ (d) π	1

7	An urn contains 6 balls of which two are red and four are black. Two balls are drawn at random. Probability that they are of the different colours is (a) $\frac{2}{5}$ (b) $\frac{1}{15}$ (c) $\frac{8}{15}$ (d) $\frac{4}{15}$	1
8	$\int \frac{dx}{\sqrt{9-25x^2}}$ (a) $\sin^{-1}\left(\frac{5x}{3}\right) + c$ (b) $\frac{1}{5}\sin^{-1}\left(\frac{5x}{3}\right) + c$ (c) $\frac{1}{6}\log\left(\frac{3+5x}{3-5x}\right) + c$ (d) $\frac{1}{30}\log\left(\frac{3+5x}{3-5x}\right) + c$	1
9	What is the distance(in units) between the two planes $3x + 5y + 7z = 3$ and $9x + 15y + 21z = 9$? (a) 0(b) 3(c) $\frac{6}{\sqrt{83}}$ (d) 6	1
10	The equation of the line in vector form passing through the point $(-1, 3, 5)$ and parallel to line $\frac{x-3}{2} = \frac{y-4}{3}, z = 2$. is (a) $\vec{r} = (-\hat{i} + 3\hat{j} + 5\hat{k}) + \lambda(2\hat{i} + 3\hat{j} + \hat{k})$. (b) $\vec{r} = (-\hat{i} + 3\hat{j} + 5\hat{k}) + \lambda(2\hat{i} + 3\hat{j})$ (c) $\vec{r} = (2\hat{i} + 3\hat{j} - 2\hat{k}) + \lambda(-\hat{i} + 3\hat{j} + 5\hat{k})$ (d) $\vec{r} = (2\hat{i} + 3\hat{j}) + \lambda(-\hat{i} + 3\hat{j} + 5\hat{k})$	1
(Q11 - Q15) Fill in the blanks		
11	If f be the greatest integer function defined as $f(x) = [x]$ and g be the modulus function defined as $g(x) = x $, then the value of g of $\left(-\frac{5}{4}\right)$ is _____	1
12	If the function $f(x) = \begin{cases} \frac{x^2-1}{x-1} & \text{when } x \neq 1 \\ k & \text{when } x = 1 \end{cases}$ is given to be continuous at $x = 1$, then the value of k is _____	1
13	If $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 4 \end{bmatrix}$, then value of y is _____.	1
14	If tangent to the curve $y^2 + 3x - 7 = 0$ at the point (h, k) is parallel to line $x - y = 4$, then value of k is ____? OR For the curve $y = 5x - 2x^3$, if x increases at the rate of 2units/sec, then at $x = 3$ the slope of the curve is changing at _____	1
15	The magnitude of projection of $(2\hat{i} - \hat{j} + \hat{k})$ on $(\hat{i} - 2\hat{j} + 2\hat{k})$ is _____ OR Vector of magnitude 5 units and in the direction opposite to $2\hat{i} + 3\hat{j} - 6\hat{k}$ is ____	1
(Q16 - Q20) Answer the following questions		
16	Check whether $(l + m + n)$ is a factor of the determinant $\begin{vmatrix} l+m & m+n & n+l \\ n & l & m \\ 2 & 2 & 2 \end{vmatrix}$ or not. Give reason.	1
17	Evaluate $\int_{-2}^2 (x^3 + 1) dx$.	1
18	Find $\int \frac{3+3\cos x}{x+\sin x} dx$.	1

	OR	
	Find $\int (\cos^2 2x - \sin^2 2x) dx$	
19	Find $\int xe^{(1+x^2)} dx$.	1
20	Write the general solution of differential equation $\frac{dy}{dx} = e^{x+y}$	1
	SECTION – B	
21	Express $\sin^{-1} \left(\frac{\sin x + \cos x}{\sqrt{2}} \right)$; where $-\frac{\pi}{4} < x < \frac{\pi}{4}$, in the simplest form.	2
	OR	
	Let R be the relation in the set Z of integers given by $R = \{(a, b) : 2 \text{ divides } a - b\}$. Show that the relation R transitive? Write the equivalence class [0].	
22	If $y = ae^{2x} + be^{-x}$, then show that $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 2y = 0$.	2
23	A particle moves along the curve $x^2 = 2y$. At what point, ordinate increases at the same rate as abscissa increases?	2
24	For three non-zero vectors \vec{a}, \vec{b} and \vec{c} , prove that $[\vec{a} - \vec{b}, \vec{b} - \vec{c}, \vec{c} - \vec{a}] = 0$.	2
	OR	
	If $\vec{a} + \vec{b} + \vec{c} = 0$ and $ \vec{a} = 3, \vec{b} = 5, \vec{c} = 7$, then find the value of $\vec{a} \cdot \vec{b} + \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a}$.	
25	Find the acute angle between the lines $\frac{x-4}{3} = \frac{y+3}{4} = \frac{z+1}{5}$ and $\frac{x-1}{4} = \frac{y+1}{-3} = \frac{z+10}{5}$	2
26	A speaks truth in 80% cases and B speaks truth in 90% cases. In what percentage of cases are they likely to agree with each other in stating the same fact?	2
	SECTION – C	
27	Let $f: A \rightarrow B$ be a function defined as $f(x) = \frac{2x+3}{x-3}$, where $A = \mathbb{R} - \{3\}$ and $B = \mathbb{R} - \{2\}$. Is the function f one –one and onto? Is f invertible? If yes, then find its inverse.	4
28	If $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$, then prove that $\frac{dy}{dx} = \frac{\sqrt{1-y^2}}{\sqrt{1-x^2}}$.	4
	OR	
	If $x = a(\cos 2\theta + 2\theta \sin 2\theta)$ and $y = a(\sin 2\theta - 2\theta \cos 2\theta)$, find $\frac{d^2y}{dx^2}$ at $\theta = \frac{\pi}{8}$.	
29	Solve the differential equation $x dy - y dx = \sqrt{x^2 + y^2} dx$.	4

30	Evaluate $\int_1^3 x^2 - 2x dx$.	4
31	Two numbers are selected at random (without replacement) from first 7 natural numbers. If X denotes the smaller of the two numbers obtained, find the probability distribution of X. Also, find mean of the distribution. OR There are three coins, one is a two headed coin (having head on both the faces), another is a biased coin that comes up heads 75% of the time and the third is an unbiased coin. One of the three coins is chosen at random and tossed. If It shows head. What is probability that it was the two headed coin ?	4
32	Two tailors A and B earn ₹150 and ₹200 per day respectively. A can stitch 6 shirts and 4 pants per day, while B can stitch 10 shirts and 4 pants per day. Form a L.P.P to minimize the labour cost to produce (stitch) at least 60 shirts and 32 pants and solve it graphically.	4
SECTION D		
33	Using the properties of determinants, prove that $\begin{vmatrix} (y+z)^2 & x^2 & x^2 \\ y^2 & (z+x)^2 & y^2 \\ z^2 & z^2 & (x+y)^2 \end{vmatrix} = 2xyz(x+y+z)^3.$ OR If $A = \begin{bmatrix} 2 & 3 & 4 \\ 1 & -1 & 0 \\ 0 & 1 & 2 \end{bmatrix}$, find A^{-1} . Hence, solve the system of equations $x - y = 3$; $2x + 3y + 4z = 17$; $y + 2z = 7$	6
34	Using integration, find the area of the region $\{(x, y) : x^2 + y^2 \leq 1, x + y \geq 1, x \geq 0, y \geq 0\}$	6
35	A given quantity of metal is to be cast into a solid half circular cylinder with a rectangular base and semi-circular ends. Show that in order that total surface area is minimum, the ratio of length of cylinder to the diameter of semi-circular ends is $\pi : \pi + 2$. OR Show that the triangle of maximum area that can be inscribed in a given circle is an equilateral triangle.	6
36	Find the equation of a plane passing through the points $A(2,1,2)$ and $B(4, -2,1)$ and perpendicular to plane $\vec{r} \cdot (\hat{i} - 2\hat{k}) = 5$. Also, find the coordinates of the point, where the line passing through the points $(3,4,1)$ and $(5,1,6)$ crosses the plane thus obtained.	6

CLASS - XII
PHYSICS (042)
SAMPLE QUESTION PAPER (2019-20)

Time allowed: 3 hours

Max. Marks: 70

General Instructions:

1. All questions are compulsory. There are 37 questions in all.
2. This question paper has four sections: Section A, Section B, Section C and Section D.
3. Section A contains twenty questions of one mark each, Section B contains seven questions of two marks each, Section C contains seven questions of three marks each, and Section D contains three questions of five marks each.
4. There is no overall choice. However, internal choices have been provided in two questions of one mark each, two questions of two marks, one question of three marks and three questions of five marks weightage. You have to attempt only one of the choices in such questions.
5. You may use the following values of physical constants where ever necessary.

$$c = 3 \times 10^8 \text{ m/s}$$

$$h = 6.63 \times 10^{-34} \text{ Js}$$

$$e = 1.6 \times 10^{-19} \text{ C}$$

$$\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$$

$$\epsilon_0 = 8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$$

$$\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$$

$$m_e = 9.1 \times 10^{-31} \text{ kg}$$

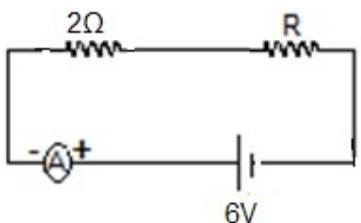
$$\text{mass of neutron} = 1.675 \times 10^{-27} \text{ kg}$$

$$\text{mass of proton} = 1.673 \times 10^{-27} \text{ kg}$$

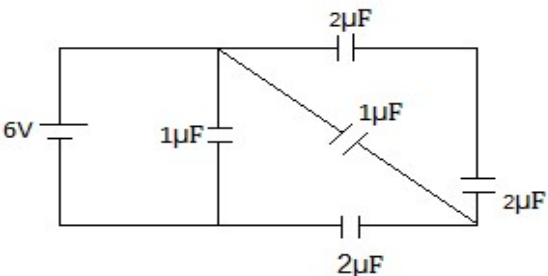
$$\text{Avogadro's number} = 6.023 \times 10^{23} \text{ per gram mole}$$

$$\text{Boltzmann constant} = 1.38 \times 10^{-23} \text{ JK}^{-1}$$

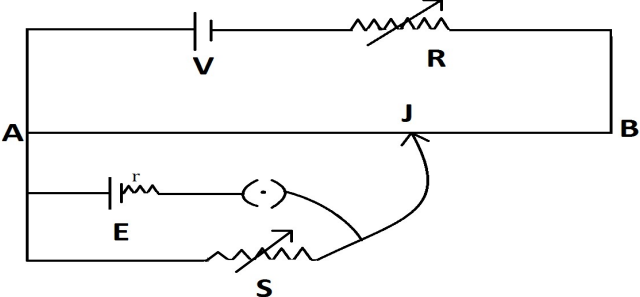
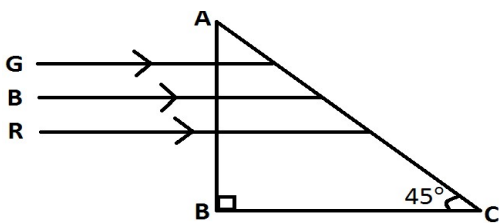
Section – A

Directions (Q1-Q10) Select the most appropriate option from those given below each question		
1.	<p>A charge q is placed at the point of intersection of body diagonals of a cube. The electric flux passing through any one of its face is</p> <p>(a) $\frac{q}{6\epsilon_0}$ (b) $\frac{3q}{\epsilon_0}$ (c) $\frac{6q}{\epsilon_0}$ (d) $\frac{q}{3\epsilon_0}$</p>	1
2.	<p>The electric potential of earth is taken to be zero because earth is a good</p> <p>(a) Insulator (b) conductor (c) semiconductor (d) dielectric</p>	1
3.	<p>If the ammeter in the given circuit shown in the diagram reads 2A, the resistance R is</p> <p>(a) 1Ω (b) 2Ω (c) 3Ω (d) 4Ω</p> <div style="text-align: center;">  <p>The diagram shows a rectangular circuit loop. At the bottom is a 6V battery with the positive terminal on the right. On the left vertical wire is an ammeter (represented by a circle with 'A' and '+' and '-' signs). On the top horizontal wire, there are two resistors in series: a 2Ω resistor on the left and a resistor labeled 'R' on the right.</p> </div>	1
4.	<p>The heat produced by 100W heater in 2 minutes is equal to</p> <p>(a) 10.5kJ (b) 16.3kJ (c) 12.0kJ (d) 14.2kJ</p>	1
5.	<p>Time period of a charged particle undergoing a circular motion in a uniform magnetic field is independent of</p> <p>(a) speed of the particle (b) mass of the particle (c) charge of the particle (d) magnetic field</p>	1
6.	<p>The final image formed in an astronomical refracting telescope with respect to the object is</p> <p>(a) Real inverted (b) Real erect (c) Virtual erect (d) Virtual inverted</p>	1
7.	<p>The shape of the interference fringes in Young's double slit experiment when D (distance between slit and screen) is very large as compared to fringe width is nearly</p> <p>(a) straight line (b) parabolic (c) circular (d) hyperbolic</p>	1

8.	Unpolarized light is incident on a plane glass surface having refractive index $\sqrt{3}$. The angle of incidence at which reflected and refracted rays would become perpendicular to each other is : (a) 15° (b) 30° (c) 45° (d) 60°	1
9.	Photoelectric emission from a given surface of metal can take place when the value of a 'physical quantity' is less than the energy of incident photon. The physical quantity is : (a) Threshold frequency (b) Work function of surface (c) Threshold wave length (d) Stopping Potential	1
10.	A photon beam of energy 12.1eV is incident on a hydrogen atom. The orbit to which electron of H-atom be excited is (a) 2 nd (b) 3 rd (c) 4 th (d) 5 th	1
Directions (Q11 –Q15) Fill in the blanks with appropriate answer.		
11	Horizontal and vertical components of earth's magnetic field at a place are equal. The angle of dip at that place is _____. OR A free floating magnetic needle at North pole is _____ to the surface of earth.	1
12	The magnetic flux linked with a coil changes by $2 \times 10^{-2} \text{Wb}$ when the current changes by 0.01A. The self inductance of the coil is _____.	1
13	If the angular speed of the armature of a dynamo is doubled then the amplitude of the induced e.m.f will become _____.	1
14	An electron is accelerated through a potential difference of 100 V , then de-Broglie wavelength associated with it is approximately _____ A°	1
15	An equilateral prism is made up of material of refractive index $\sqrt{3}$. The angle of minimum deviation of light passing through the prism is _____.	1
Directions (Q16 –Q20) Answer the following		
16.	Which physical quantity in a nuclear reaction is considered equivalent to the Q-value of the reaction?	1
17.	Zener diode is used in reverse bias. When its reverse bias is increased, how does the thickness of the depletion layer change?	1
18	The initial concentration of a radioactive substance is N_0 and its half life is 12 hours. What will be its concentration after 36 hours?	1
19.	Work function of Sodium is 2.75eV. What will be KE of emitted electron when photon of energy 3.54eV is incident on the surface of sodium?	1

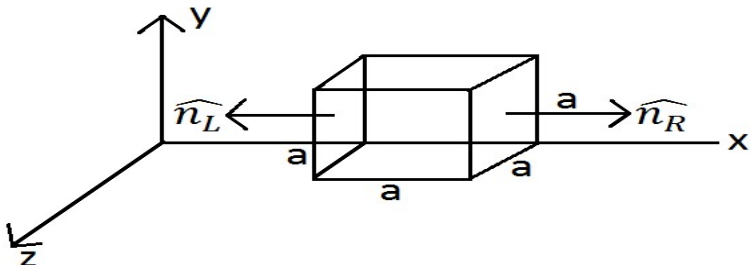
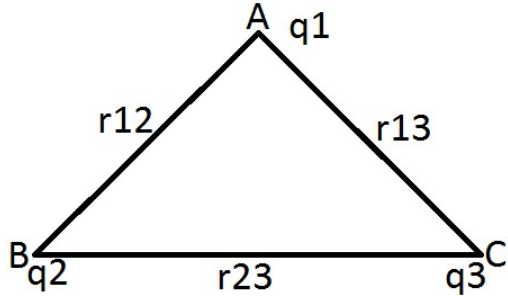
20.	<p>From the information of energy band gaps of diodes, how do you decide which can be light emitting diodes?</p> <p style="text-align: center;">OR</p> <p>Give any one advantage of LEDs over conventional incandescent low power lamps</p>	1
21	Derive the expression for drift velocity of free electron in terms of relaxation time and electric field applied across a conductor.	2
22	<p>Find total energy stored in capacitors given in the circuit</p> 	2
23	An α - particle and a proton are accelerated through same potential difference. Find the ratio (v_α/ v_p)of velocities acquired by two particles.	2
24	What is Brewster's angle? Derive relation between Brewster angle and refractive index of medium which produces Plane Polarized light.	2
25	<p>The work function of Cs is 2.14eV.Find</p> <p>(a) threshold frequency for Cs</p> <p>(b) Wavelength of incident light if the photo current is brought to zero by stopping potential of 0.6 V.</p>	2
26	<p>Derive an expression for the radius of n^{th} Bohr's orbit in Hydrogen atom.</p> <p style="text-align: center;">OR</p> <p>Energy of electron in first excited state in Hydrogen atom is -3.4eV. Find KE and PE of electron in the ground state.</p>	2
27	<p>Draw energy band diagram of p & n type semiconductors. Also write two differences between p and n type semiconductors.</p> <p style="text-align: center;">OR</p> <p>Energy gap in a p – n photodiode is 2.8 eV. Can it detect a wavelength of 6000 nm? Justify your answer.</p>	2

Section – C

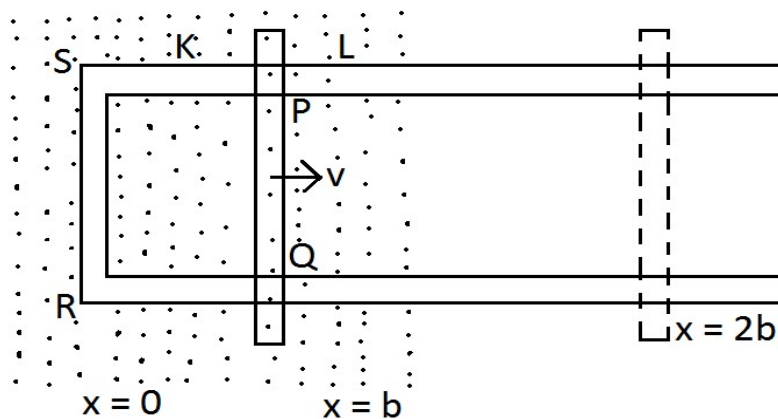
28	<p>State working principle of potentiometer. Explain how the balance point shifts when value of resistor R increases in the circuit of potentiometer, given below.</p> 	3
29	<p>Using Biot-Savart's law, derive an expression for magnetic field at any point on axial line of a current carrying circular loop. Hence, find magnitude of magnetic field intensity at the centre of circular coil.</p>	3
30	<p>Obtain the resonant frequency and Q – factor of a series LCR circuit with $L = 3H$, $C = 27\mu F$, $R = 7.4\Omega$. It is desired to improve the sharpness of resonance of circuit by reducing its full width at half maximum by a factor of 2. Suggest a suitable way.</p>	3
31	<p>State the conditions of total internal reflection. Refractive indices of the given prism material for Red, Blue and Green colors are respectively 1.39, 1.48 and 1.42 respectively. Trace the path of rays through the prism.</p> 	3
32	<p>Define resolving power of an astronomical refracting telescope and write expression for it in normal adjustment. Assume that light of wave length 6000\AA is coming from a star, what is the limit of resolution of a telescope whose objective has a diameter of 2.54m?</p> <p align="center">OR</p> <p>Write the basic assumptions used in the derivation of lens – maker's formula and hence derive this expression.</p>	3

33	Show that ${}_{92}^{238}\text{U}$ can not spontaneously emit a proton. Given: ${}_{92}^{238}\text{U} = 238.05079\text{u}$, ${}_{91}^{237}\text{Pa} = 237.05121\text{u}$ ${}_{1}^1\text{H} = 1.00783\text{u}$	3
34	Suggest an idea to convert a full wave bridge rectifier to a half wave rectifier by changing the connecting wire/s. Draw the diagram and explain your answer.	3

Section – D

35	<p>(a) Using Gauss's law, derive expression for intensity of electric field at any point near the infinitely long straight uniformly charged wire.</p> <p>(b) The electric field components in the following figure are $E_x = \alpha x$, $E_y = 0$, $E_z = 0$; in which $\alpha = 400 \text{ N/C m}$. Calculate (i) the electric flux through the cube, and (ii) the charge within the cube assume that $a = 0.1\text{m}$.</p> <div style="text-align: center;">  </div> <p style="text-align: center;">OR</p> <p>a) Define electrostatic potential at a point. Write its SI unit. Three charges q_1, q_2 and q_3 are kept respectively at points A, B and C as shown in figures. Write the expression for electrostatic potential energy of the system.</p> <div style="text-align: center;">  </div> <p>b) Depict the equipotential surfaces due to</p> <ol style="list-style-type: none"> (i) an electric dipole (ii) two identical negative charges separated by a small distance. 	5
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36	In the following diagram, the arm PQ of the rectangular conductor is moved from $x = 0$; outwards.	5
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The uniform magnetic field is perpendicular to the plane and extends from $x = 0$ to $x = b$ and is zero for $x > b$. Only the arm PQ possesses substantial resistance 'r'. Consider the situation when the arm PQ is pulled outwards from $x = 0$ to $x = 2b$, and is then moved back to $x = 0$ with constant speed 'v'. Obtain expressions for the (i) electric flux, (ii) the induced emf, (iii) the force necessary to pull the arm and (iv) the power dissipated as Joule heat.

Sketch the variation of these quantities with distance.

OR

Write working principle of cyclotron and with a suitable diagram explain its working. Give any two applications of cyclotron.

5

37

Derive mirror equation for a convex mirror. Using it, show that a convex mirror always produces a virtual image, independent of the location of object.

5

OR

(a) Draw a ray diagram for final image formed at distance of distinct vision (D) by a compound microscope and write expression for its magnifying power.

5

(b) An angular magnification (magnifying power) of 30x is desired for a compound microscope using as objective of focal length 1.25cm and eye piece of focal length 5cm. How will you set up the compound microscope?

**SAMPLE QUESTION PAPER (2019-2020)
POLITICAL SCIENCE (028)
CLASS XII**

Time allowed: 3Hrs.

Max Marks-80

General Instructions:-

- a) All questions are compulsory.
- b) Question nos. 1 to 20 carry 1 mark each. Answer should not exceed 20 words each.
- c) Question nos. 21 to 23 carry 2 marks each. Answer should not exceed 40 words each.
- d) Question nos. 24 to 27 carry 4 marks each. Answer should not exceed 100 words each.
- e) Question nos. 28 to 30 carry 5 marks each. Two passage based questions and one picture based question. should not exceed 150 words each.
- f) Question no 31 is a map –based question. Write its answers in your answer book.
- g) Question nos. 32 to 34 carry 6 marks each. Each with an internal choice. Answer should not exceed 150 words each.

SECTION-A		
Q1.	<p>Complete the following in a meaningful way: -</p> <p>What are safety nets?</p> <p style="text-align: center;">OR</p> <p>In 1945 the Allied forces included the US_____ USSR and _____.</p>	<p>1</p> <p>(Remembering)</p>
Q2..	<p>Which event in 1989 led to the unification of Germany?</p>	<p>1</p> <p>(Remembering)</p>
Q3.	<p>Correct the statement and re write: -</p> <p>The first world was the communist countries and the third world was the capitalist countries.</p>	<p>1</p> <p>(understanding)</p>
Q4.	<p>Name any two founder leaders of NAM?_____.</p>	<p>1</p> <p>(Remembering)</p>

Q5.	Which state was carved out of Assam from the following- I. Meghalaya ii.Sikkim iii.Manipur iv.Tripura	1 (application)
Q6.	What was the main purpose of launching Operation Enduring freedom?	1 (application/ understanding)
Q7.	The strategy of staying as far removed from the dominant power as possible is also known as-----.	1 (application)
Q8.	Informal, non-confrontationist and cooperative interaction among members of South East Asian Nations is also called-----.	1 (application)
Q9.	Identify the country----- Where the Monarch worked to weed out militants and guerrillas from north-eastern India that operated in his country with a view to help India.	1 (Remembering)
Q10.	Which of the following countries had an issue related to the migration of Rohingyas? a) Nepal b) Bhutan c)Myanmar d)China	1 (HOTS)
Q11.	Complete the sentence--- The Rio Summit recommended a list of development practices called-----.	1 (HOTS)
Q12.	The famous speech delivered by JawaharLal Nehru at the hour of midnight on 14-15 August, 1947 has come to be called as----- -----.	1 (Remembering)

Q13.	Which institution has replaced the planning commission?	1 (remembering)
Q14.	Name the person with whom would you associate the following slogans? a. Aya Ram and Gaya Ram _____ b. Total Revolution _____	1 (application)
Q15.	Select the correct option: - The Grand Alliance of opposition of 1971 a. Got a combined tally of seats that was less than 40. b. Had a clear ideological programme. c. Had a grand finish in the 1970 elections. d. Proved to be a grand success.	1 (application)
Q16.	Select the correct option for the leader and the country that helped to reach the Tashkent agreement between India and Pakistan: I. India, Nehru b. USSR, Kosygin c. Egypt, Nasser d. Indonesia, Sukarno	1 (HOTS)
Q17.	Correct and rewrite the statement----- Ravi, Beas river dispute was resolved between Himachal Pradesh, Punjab and Uttarakhand.	1 (understanding)
Q18.	Identify the organisation that brokered the Indus water treaty between India and Pakistan.	1 (HOTS)
Q19.	At the time of Independence, Indian leaders were committed to the aims of Liberty, Equality, Fraternity and _____.	1 (understanding)
Q20.	Correct the following sentence and rewrite it-- On June 1977, Prime Minister Morarji Desai recommended the	1 (Remembering)

	imposition of the emergency to GyaniZail Singh.	
	SECTION-B	
Q21.	Mention any two main objectives of the United Nations.	2 (understanding)
Q22.	Highlight two arenas of Cold War along with example of each.	2 (application)
Q23.	Explain with the help of an example the meaning of Anti-Congressism.	2 (HOTS)
	SECTION-C	
Q24.	Describe the objectives of Iraq invasion by the US..	4 (Remembering)
Q25.	Highlight the role of Jawaharlal Nehru the first Prime Minister of India in the formation of India's foreign policy.	4 (understanding)
Q26.	Analyse any four challenges faced by Election Commission of India before the first General Election. OR Which two models of modern development were there before India on the eve of independence? Which model did India decide to choose and why?	1x4 (Evaluation) 1+3
Q27.	You are an important leader of Farmers' agitation. The Government authorities ask you to present any two demands on behalf of the farmers. On priority basis, which three demands will you make? Support your demands with appropriate arguments.	4 (HOTS)
	SECTION-D	
Q28.	Study the given cartoon carefully and answer the questions that follow--	5 (application)



- What does lion in the cartoon represent? What does it believe?
- What does tiger in the cartoon represent? What is its demand?
- Which country's problem is depicted here? Which dilemma of government is represented by this cartoon?
- Name the external powers that helped to resolve issues.

Question

To be attempted only by visually impaired students

'In spite of the ongoing conflict, Srilanka recorded development'.
Comment

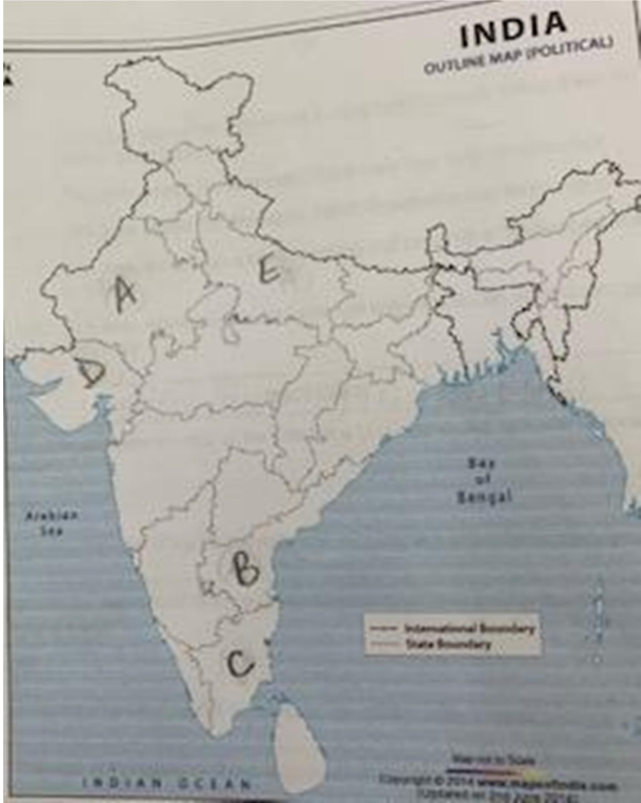
Q29.

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

2+3=5(HOTS)

The growing focus on environmental issues within the arena of global politics was firmly consolidated at the United Nations Conference on Environment and Development held at Rio de Janeiro, Brazil in June 1992. This was also called the Earth Summit....What was obvious at the Rio Summit was the rich and the developed countries of the first world generally referred to as the "Global North" were pursuing a different environmental agenda than the poor and the developing countries of the III world called the "Global South"...The differences in their approach culminated into the adoption of the principle called "Common but differentiated responsibilities."

- How was the environmental concern of the first world different from that of the third world?
- In what ways did the principle of "Common but differentiated responsibilities' help in addressing and overcoming the differences between the "Global North" and 'Global South"?

<p>Q30.</p>	<p>Read the given passage and answer the questions that follow:</p> <p>“In the early years of independence, two contradictory tendencies were already well advanced inside the Congress Party. On the other hand, the national party executive endorsed socialist principles of state ownership, regulation and control over key sectors of the economy in order to improve productivity and at the same time curb economic concentration. On the other hand, the national Congress government pursued liberal economic policies and incentives to private investment that was justified in terms of sole criterion of achieving maximum increase in production”.</p> <p style="text-align: right;">Francine Frankel</p> <p>a) What concept of planning was finally adopted by India ?</p> <p>b) In order to improve productivity which principles were endorsed by the national party.</p> <p>c) Do you agree - that there was a contradiction between the central leadership of the Congress party and its state level leaders. Justify your answer</p>	<p>5</p> <p>(understanding)</p>
<p>Q31.</p>	 <p>In the given outline political map of India five states have been marked as (A) (B) (C)(D) and (E). Identify these states on the basis of the information given below and write their correct names in your answer book , along with their respective serial number of the</p>	<p>6</p> <p>(Evaluation)</p>

information used and the concerned alphabets as per the following format:-

- (i) The state where women put a ban on the sale of arrack and stopped its auction.
- (ii) The state where there was anti Hindi agitation in 1965.
- (iii) The state where the MKSS demanded records for famine relief and accounts of labours.
- (iv) The state where the Sardar Sarovar dam is located.
- (v) The state which saw a farmers agitation in 1988 protesting against the governments increased electricity rates.

Corresponding numbers	Answer	Corresponding Alphabet
(i)		
(ii)		
(iii)		
(iv)		
(v)		

Visually impaired students

Answer the following questions by naming the state

- (i) The state where the movement to hug trees to avoid felling them for sports good began.
- (ii) The state where the Sardar Sarovar Project is.
- (iii) The state where the Anandpur Sahib Resolution has been signed.
- (iv) The state which was a Union territory but became a full-fledged state in 1987.
- (v) The state where the leader Laldenga entered into an armed

	struggle with India.	
	SECTION-E	
Q32	<p>Critically evaluate the role of the UNO in a Unipolar world. Is it still relevant? How?</p> <p>OR</p> <p>Examine the role of traditional notion of security in the contemporary world.</p>	<p>6</p> <p>(Remembering)</p>
Q33	<p>Identify the two power blocs by emphasising their role during the Cuban missile crisis.</p> <p>OR</p> <p>Compare and contrast the “shock therapy “of the USSR with “the open door’ policy of China.</p>	<p>6</p> <p>(understanding)</p>
Q34	<p>“The split of Congress in 1969 was inevitable.” Elaborate.</p> <p>OR</p> <p>“Government that are seen to be unstable, quarrelsome and divisive have been severely punished”. Elucidate giving examples from 1975-1977</p>	<p>6</p> <p>(application)</p>