

**सामान्य निर्देश -**

- [1] यह प्रश्न पत्र दो खण्डों में विभाजित है- खंड 'अ' और 'ब' ।
- [2] खंड 'अ' में उपप्रश्नों सहित 45 वस्तुपरक प्रश्न पूछे गए हैं । दिए गए निर्देशों का पालन करते हुए कुल 40 प्रश्नों के उत्तर दीजिए ।
- [3] खंड 'ब' में वर्णनात्मक प्रश्न पूछे गए हैं, आंतरिक विकल्प भी दी गए हैं ।
- [4] निर्देशों को बहुत सावधानी से पढ़िए और उनका पालन कीजिए ।
- [5] दोनों खण्डों में कुल 18 प्रश्न हैं। दोनों खण्डों के प्रश्नों के उत्तर देना अनिवार्य है।
- [6] यथासंभव दोनों खण्डों के प्रश्नों के उत्तर क्रमशः लिखिए ।

**खंड - अ (वस्तुपरक प्रश्न)**

**प्रश्न 1 निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर इसके आधार पर सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए-** (1x5=5)

प्रकृति और मनुष्य का सम्बन्ध ऐतिहासिक दृष्टि से काफी बाद में शुरू हुआ, क्योंकि प्रकृति पहले से थी, मनुष्य बाद में आया, लेकिन अपने विकास के क्रम में मनुष्य ने शीघ्र ही प्रकृति पर अपनी इच्छा आरोपित करनी चाही । तब से संघर्ष तथा स्वीकृति का एक लोमहर्षक नाटक मनुष्य और प्रकृति के बीच चल रहा है । आज भी मनुष्य प्रकृति का ही पुत्र है । जन्म, जीवन, ज़रा, मरण आदि अपनी अनेक स्थितियों में वह आज भी प्राकृतिक नियमों से मुक्त नहीं हो सका है, इसके बाबजूद निरंतर उसकी चेष्टा यही रही है कि वह ज्ञान - विज्ञान की अपनी सामूहिक परिश्रम के बल पर प्रकृति को पूर्णतः अपने वश में कर ले । प्रकृति का संतुलन बिगाड़ने की दिशा में मनुष्य पिछले दो-तीन सौ वर्षों के दौरान इतना अधिक बढ़ चुका है कि अब पीछे हटना असंभव लगता है। जिस गति से विभिन्न क्षेत्रों में प्राकृतिक संतुलन बिगड़ते रहे हैं, उसमें कोई भी कमी व्यावहारिक नहीं प्रतीत होती, क्योंकि हमारी अर्थव्यवस्थाएँ, और दैनिक आवश्यकताएँ उस गति के साथ जुड़ सी गई हैं । क्या हमें ज्ञान नहीं कि जिसे हम अपना आहार समझ रहे हैं, वस्तुतः हमारा दैनिक विष है जो सामूहिक आत्महत्या की दिशा में हमें लिए जा रहा है ?

1.भावात्मक दृष्टि से मनुष्य और प्रकृति के बीच चल रहा है -

कथन पढ़कर सही विकल्प का चयन कीजिए।

- कथन: (i) संघर्ष और स्वीकृति का नाटक (ii) संबंधों का नाटक  
(iii) ज्ञान-विज्ञान का नाटक (iv) विजय का नाटक

विकल्प :

- (क) कथन (i) सही है (ख) कथन (ii) सही है।  
(ग) कथन (iii) और (iv) सही है। (घ) कथन (i) और (ii) सही है।

2. मनुष्य प्रकृति को वश में करना चाहता है -

- (क) ज्ञान के बल पर (ख) विज्ञान के बल पर  
(ग) ज्ञान-विज्ञान की सामूहिक परिश्रम के बल पर (घ) इच्छा के बल पर

3. हम विष को समझ रहे हैं \_

- (क) आवश्यकता (ख) आहार (ग) गति (घ) प्रगति

4. आज भी मनुष्य अपनी अनेक स्थितियों में जुड़ा हुआ है -

- (क) प्रगति के इतिहास में (ख) परिमंडल विज्ञान से  
(ग) प्रकृति के संतुलन में (घ) प्रकृति के नियमों से

5. कथन (A) और कथन (R) को पढ़कर उपयुक्त विकल्प चुनिए :

कथन (A):मनुष्य आज भी प्रकृति के नियमों से मुक्त नहीं हो सकता।

कथन (R):इसके बावजूद ज्ञान-विज्ञान के बल पर प्रकृति को अपने वश में करना चाहता है।

- (क) कथन (A) गलत है किन्तु कथन (R) सही है।  
(ख) कथन (A) और कथन (R) दोनों ही गलत हैं।  
(ग) कथन (A) सही है और कथन (R) कथन (A) की सही व्याख्या करता है।  
(घ) कथन (A) सही है और कथन (R) कथन (A) की सही व्याख्या नहीं करता है।

प्रश्न 2 निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर इसके आधार पर सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए- (1x5=5)

काशी संस्कृति की पाठशाला है। शास्त्रों में आनंदकानन के नाम से प्रतिष्ठित ! काशी में कलाधर हनुमान व नृत्य-विश्वनाथ हैं। काशी में विस्मिल्ला खाँ हैं। काशी में हजारों साल का इतिहास है जिसमें पण्डित कंठे महाराज हैं, विद्याधरी हैं, बड़े रामदास जी हैं, मौजूददीन खान हैं, व इन रसिकों से उपकृत होने वाला अपार जन-समूह है। यह एक अलग काशी है

जिसकी अलग तहजीब है, अपनी बोली और अपने विशिष्ट लोग हैं। इनके अपने उत्सव हैं, अपना गम, अपना सेहरा - बन्ना और अपना नौहा। आप यहाँ संगीत को भक्ति से, भक्ति को किसी भी धर्म के कलाकार से, कजरी को चैती से, विश्वनाथ को विशालाक्षी से विस्मिल्ला खाँ को गंगाद्वार से अलग करके नहीं देख सकते।

1.काशी क्या है ?

- (क) संस्कृति की पाठशाला (ख) संगीत की दुनियाँ  
(ग) गंगा मैया का उपहार (घ) सभी कुछ

2. काशी में क्या है ?

- (क) कलाधर हनुमान (ख) नृत्य-विश्वनाथ  
(ग) विस्मिल्ला खान (घ) उपर्युक्त सभी

3. काशी के हजारों साल के इतिहास में क्या है ?

- (क) पण्डित कंठे महाराज (ख) विद्याधारी  
(ग) रामदास जी (घ) उपर्युक्त सभी

4. किसको किससे अलग करके नहीं देखा जा सकता ?

- (क) संगीत को भक्ति से (ख) भक्ति को कलाकार से  
(ग) विस्मिल्ला खाँ को गंगाद्वार से (घ) उपर्युक्त सभी

5.काशी का अपना क्या है ?

- (क) अपनी तहजीब (ख) अपना संगीत  
(ग) अपना गम (नौहा) (घ) सभी कुछ

प्रश्न 3 निर्देशानुसार 'पदबंध' पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए - (1x4=4)

[1] अब पवन-पुत्र हनुमान का प्रवेश हो गया है।

- [क] संज्ञा पदबंध [ख] सर्वनाम पदबंध  
[ग] विशेषण पदबंध [घ] क्रिया-विशेषण पदबंध

[2] नदी कल - कल करती हुई बह रही थी।

- [क] संज्ञा पदबंध [ख] सर्वनाम पदबंध  
[ग] विशेषण पदबंध [घ] क्रिया - पदबंध

[3] बंगले के पीछे लगा हुआ पेड़ गिर गया ।

[क] संज्ञा पदबंध

[ख] सर्वनाम पदबंध

[ग] विशेषण पदबंध

[घ] क्रिया-विशेषण पदबंध

[4] मेरी माँ ने उसकी मदद की ।

[क] संज्ञा पदबंध

[ख] सर्वनाम पदबंध

[ग] विशेषण पदबंध

[घ] क्रिया -पदबंध

[5] उसकी आवाज बहुत मधुर है ।

[क] संज्ञा पदबंध

[ख] सर्वनाम पदबंध

[ग] विशेषण पदबंध

[घ] क्रिया-विशेषण पदबंध

प्रश्न 4 निर्देशानुसार 'रचना के आधार पर वाक्य भेद' पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए - (1x4=4)

[1] निम्नलिखित में से सरल वाक्य होगा \_

[क] जब आपने जो कहा, मैंने सुन लिया ।

[ख] आपने जो कहा, वो मैंने सुन लिया ।

[ग] जो भी आप कहते हैं, मैं सुन लेता हूँ ।

[घ] आपका कहा मैंने सुन लिया ।

[2] 'मोनूमेंट के नीचे झंडा फहराया जायेगा और स्वतंत्रता की प्रतिज्ञा ली जाएगी' । रचना के आधार पर यह वाक्य है-

[क] सरल वाक्य

[ख] संयुक्त वाक्य

[ग] मिश्र वाक्य

[घ] निषेधवाचक वाक्य

[3] 'ठंडी बयार समुन्द्र से चलकर तटरा को छू रही थी ।-' रचना के आधार पर यह वाक्य है-

[क] सरल वाक्य

[ख] संयुक्त वाक्य

[ग] मिश्र वाक्य

[घ] निषेधवाचक वाक्य

[4] 'जब कभी भी बड़े भाई साहब को मुझे डाँटने का अवसर मिला तब-तब उन्होंने मुझे डाँटा'- रचना के आधार पर यह वाक्य है-

[क] सरल वाक्य

[ख] संयुक्त वाक्य

[ग] मिश्र वाक्य

[घ] विधानवाचक वाक्य

[5] निम्नलिखित वाक्यों में से मिश्र वाक्य छांटिए-

[क] सूर्य निकलते ही उजाला हो जाता है ।

[ख] जैसे ही सूर्य निकलता है, वैसे ही उजाला हो जाता है ।

[ग] सूर्य निकला और उजाला हुआ ।

[घ] सूर्य निकलता है और उजाला हो जाता है ।

प्रश्न 5 निर्देशानुसार 'समास' पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए - (1x4=4)

[1] 'पुत्रवियोग' में कौन -सा समास है ?

[क] बहुव्रीही समास

[ख] कर्मधारय समास

[ग] द्विगु समास

[घ] तत्पुरुष समास

[2] 'धर्म - अधर्म' में कौन -सा समास है ?

[क] बहुव्रीही समास

[ख] कर्मधारय समास

[ग] द्वंद्व समास

[घ] तत्पुरुष समास

[3] 'शरणागत' समस्त पद में कौन -सा समास है ।

[क] बहुव्रीही समास

[ख] कर्मधारय समास

[ग] द्वंद्व समास

[घ] तत्पुरुष समास

[4] निम्नलिखित युग्मों पर विचार कीजिए

समस्त पद

समास

[क] दिनचर्या

तत्पुरुष समास

[ख] सप्तर्षि

कर्मधारय समास

[ग] महानायक

द्विगु समास

[घ] ध्यानमग्न

तत्पुरुष समास

उपयुक्त युग्मों में से कौन-से सही सुमेलित हैं -

[क] i और ii

[ख] ii और iii

[ग] iii और iv

[घ] i और iv

[5] 'चक्रधारी'- शब्द किस समास का उदाहरण है ?

[क] अव्ययी भाव समास

[ख] बहुव्रीही समास

[ग] द्वंद्व समास

[घ] तत्पुरुष समास

प्रश्न 6 निर्देशानुसार 'मुहावरे' पर आधारित छह बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए - (1x4=4)

निम्नलिखित युग्मों पर विचार कीजिए

मुहावरे	अर्थ
[क] हाथ विशाल होना	बहुत समर्थ होना ।
[ख] सर धुनना	इर्ष्या में दुखी होना
[ग] आँखें बंद होना	मेहनत की कमाई
[घ] लगती बात	चुभने वाली बात
<b>उपयुक्त युग्मों में से कौन-से सही सुमेलित हैं -</b>	
[क] i और ii	[ख] ii और iii
[ग] iii और iv	[घ] i और iv
[2] 'दिल पसीजना' मुहावरे का सही अर्थ क्या होगा -	
[क] आसान उपाय	[ख] छिपाना
[ग] मन में दया आना	[घ] बुरी तरह पीड़ा पहुँचाना ।
[3] 'आजकल तो भारत में आतंकवाद की .....रही है ।' उचित मुहावरे का प्रयोग करते हुए रिक्त स्थान की पूर्ति कीजिए ।	
[क] फूँटी आँख ना सुहाना ।	[ख] चमड़ी उधेड़ना
[ग] तूती बोलना	[घ] तार -तार होना ।
[4] 'आसान उपाय' अर्थ के लिए उपयुक्त मुहावरा है -	
[क] सस्ता सौदा	[ख] मथे मढ़ना
[ग] मुट्ठी भर	[घ] हक्का -बक्का
[5] रेखांकित अंश के लिए कौन - सा मुहावरा प्रयुक्त करना उचित होगा ?	
जो भी लिखो, काम की बात लिखो । <u>यूँ बेकार हीं ना लिखो ।</u>	
[क] पन्ने रंगना	[ख] बाट जोहना
[ग] सातवें आसमान पर होना ।	[घ] आँखों में तैरना
[6] रेखांकित अंश के लिए कौन - सा मुहावरा प्रयुक्त करना उचित होगा ?	
बमकांड में अपनी बेटी का मृत शरीर देखकर माँ के <u>दिल को गहरा आघात लगा ।</u>	
[क] जिगड़ के टुकड़े-टुकड़े होना ।	[ख] आग बबूला होना
[ग] अकल पर पत्थर पड़ना ।	[घ] सुराग न मिलना

प्रश्न 7- निम्नलिखित पद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर के लिए सही विकल्प का चयन कीजिए - (1x5=5)

जिंदा रहने के मौसम बहुत हैं मगर  
जान देने की रुत रोज़ आती नहीं  
हुस्न और इश्क दोनों को रुसवा करें  
वो जवानी जो खूँ में नहाती नहीं  
आज धरती बनी है दुल्हन साथियों  
अब तुम्हारे हवाले वतन साथियों

[1]. 'जान देने की रुत' किसे कहा गया है ?

[क] मौत का समय [ख] जान देने का समय  
[ग] देश की रक्षा करते हुए आत्म - बलिदान देने का समय [घ] उपर्युक्त में से कोई नहीं

[2]. प्रस्तुत गीत में धरती की तुलना किससे की गई है ?

[क] स्त्री से [ख] दुल्हन से [ग] माँ से [घ] बहन से

[3] जवानी का खूँ में नहाने से क्या आशय है ?

[क] देश की रक्षा करते हुए आत्म - बलिदान देना [ख] पड़ोसी से लड़ते हुए खून बहाना  
[ग] जवानी में खून का उबलना [घ] जवानी में लड़ाई - झगड़ा करना

[4] प्रस्तुत पंक्तियाँ किस कविता से ली गयी हैं ?

[क] पर्वत प्रदेश में पावस [ख] आत्मत्राण  
[ग] तोप [घ] कर चले हम फ़िदा

[5] 'रुत' का क्या अर्थ है ?

[क] मौसम [ख] जवानी [ग] वर्षा [घ] कुर्बानी

प्रश्न 8- निम्नलिखित प्रश्नों के उत्तर देने के लिए उचित विकल्प का चयन कीजिए-(1x2=2)

[1] ' नब्ज़ जमती गई ' से क्या भाव है ?

[क] साँसे थम जाना । [ख] ठंडा लगना  
[ग] बहुत बर्फ पड़ना [घ] मृत्यु के समीप होना

[2] 'सीता का दामन' से क्या तात्पर्य है ?

[क] देश की परतंत्रता [ख] देवी - देवताओं की मर्यादा  
[ग] मातृभूमि का सम्मान [घ] अपसंस्कृति

प्रश्न 9 निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर के लिए सही विकल्प का चयन कीजिए - (1x5=5)

धरती किसी एक की नहीं है। पंछी, मानव, पशु, नदी, पर्वत, समंदर, आदि की इसमें बराबर की हिस्सेदारी है। यह और बात है कि इस हिस्सेदारी में मानव जाति ने अपनी बुद्धि से बड़ी-बड़ी दीवारें खड़ी कर दी हैं। पहले पूरा संसार एक परिवार के समान था अब टुकड़ों में बँटकर एक-दूसरे से दूर हो चुका है। पहले बड़े-बड़े दालानों-आँगनों में सब मिल-जुलकर रहते थे अब छोटे-छोटे डिब्बों जैसे घरों में मानव का जीवन सिमटने लगा है। बढ़ती हुई आबादियों ने समंदर को पीछे सरकाना शुरू कर दिया है, पेड़ों को रास्तों से हटाना शुरू कर दिया है। बारूदों की विनाशलीला ने वातावरण को सताना शुरू कर दिया है। अब गरमी में ज्यादा गरमी, बेवक्त की बरसातें, जलजले, सैलाब, तूफान और नित नए रोग, मानव और प्रकृति के इसी असंतुलन के परिणाम हैं।

1. लेखक के अनुसार धरती में किस-किसकी हिस्सेदारी है ?

- [क] पशु-पक्षियों की [ख] पर्वतों की  
[ग] समुद्र की [घ] ये सभी

2. जीवन कैसे घरों में सिमटने लगा है ?

- [क] गोल-गोल गेंदों जैसे [ख] छोटे-छोटे डिब्बों जैसे  
[ग] बड़े-बड़े समुन्द्र जैसे [घ] लम्बी-लम्बी नदियों जैसे

3. जनसंख्या वृद्धि का क्या दुष्परिणाम हुए ?

- [क] वृक्षों की कटाई [ख] समंदर को पीछे सरकाना  
[ग] 'क' और 'ख' दोनों [घ] घरों का गिरना

4. पहले पूरा संसार किसके जैसा था ?

- [क] एक देश जैसा [ख] एक समुद्र जैसा  
[ग] एक गेंद जैसा [घ] एक परिवार जैसा

5. प्रकृति के असंतुलन के क्या परिणाम हैं ?

- [क] बेवक्त की बरसातें [ख] अत्यधिक गरमी  
[ग] तूफान व सैलाब [घ] ये सभी

प्रश्न 10 निम्नलिखित प्रश्नों के उत्तर देने के लिए उचित विकल्प का चयन कीजिए।

(1x2=2)

[1] माँ ने लेखक को दरिया पर जाकर क्या करने को कहा ?

- [क] नहाने को [ख] सलाम करने को  
[ग] पानी लाने को [घ] ये सभी

[2] लेखक के अनुसार चाय बनाने की सभी क्रियाएं किस रूप में संपन्न हुई ?

- [क] ग्राहकों की पसंद के अनुसार [ख] बहुत जल्दबाजी में  
[ग] समय के अनुसार [घ] गरिमापूर्ण ढंग से

खंड ब ( वर्णनात्मक प्रश्न )

प्रश्न 11 निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए (3x2=6)

- [1] जुलूस के लालबाजार आने पर लोगों की क्या दशा हुई ?  
[2] शैलेन्द्र के गीतों की क्या विशेषताएं हैं? अपने शब्दों में लिखिए।  
[3] ततारा-वामीरो कथा के आधार पर स्पष्ट कीजिए कि पशु-पर्व का आयोजन किस प्रकार किया गया था ? उस दिन वहाँ क्या घटना घटी ?

प्रश्न 12 निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए (3x2=6)

- [1] 'सर हिमालय का हमने न झुकने दिया' - इस पंक्ति का क्या अर्थ है ? स्पष्ट कीजिए।  
[2] झरने किसके गौरव का गान कर रहे हैं? बहते हुए झरने की तुलना किससे की गई है ?  
[3] 'मनुष्यता' कविता में कवि ने उदार व्यक्ति के किन-किन गुणों का वर्णन किया है ?

प्रश्न 13 निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए- (3x2=6)

- [1] इफ्फन और टोपी शुक्ला की मित्रता भारतीय समाज के लिए किस प्रकार प्रेरक है? जीवन मूल्यों की दृष्टि से उत्तर दीजिए?  
[2] 'सपनों के से दिन' पाठ के आधार पर स्पष्ट करें कि अभिभावकों को बच्चों की पढ़ाई में रुचि क्यों नहीं थी ?  
[3] समाज में रिश्तों की क्या अहमियत है? 'हरिहर काका' पाठ के आधार पर स्पष्ट कीजिए।

[14] निम्नलिखित में से किसी एक विषय पर संकेत बिन्दुओं के आधार पर लगभग 100 शब्दों में एक अनुच्छेद लिखिए - (5x1=5)

[1] नन्हें कन्धों पर बढ़ता बस्ते का बोझ

- . भूमिका
- . हमारी शिक्षा व्यवस्था
- . गृहकार्य और कक्षा कार्य
- . माता-पिता की भूमिका
- . उपाय

अथवा

[2] मुझे प्रकृति की ओर -

- . मानव प्रकृति का अभिन्न अंग है
- . प्रकृति से छेड़छाड़ भयावह
- . प्रकृति की रक्षा से मानव की रक्षा संभव
- . निष्कर्ष

अथवा

[3] शिक्षक-शिक्षार्थी सम्बन्ध -

- . प्राचीन भारत में गुरु-शिष्य सम्बन्ध
- . वर्तमान युग में आया अंतर
- . हमारा कर्तव्य
- . निष्कर्ष

15] निम्नलिखित विषयों में से किसी एक विषय पर 100 शब्दों में एक पत्र लिखिए

(5x1=5)

[1] आपके क्षेत्र में अनाधिकृत मकान बनाए जा रहे हैं, इनकी रोकथाम के लिए जिलाधिकारी को पत्र लिखिए।

अथवा

[2] आपके मोहल्ले में कुछ अपराधी तत्व सक्रिय हो गए हैं। अपने थाना अध्यक्ष को गस्त बढ़ाने का अनुरोध करते हुए पत्र लिखिए।

16] निम्नलिखित विषयों में से किसी एक विषय पर लगभग 80 शब्दों में एक सूचना लिखिए। (4X1=4)

[1] विद्यालय में कवि-सम्मलेन के आयोजन की एक सूचना तैयार कीजिए।

अथवा

[2] आप शांति विद्या निकेतन, दिल्ली की छात्रा खुशी मेहरा हैं। विद्यालय में आपका परीक्षा-प्रवेश पत्र गुम हो गया है, इस विषय पर एक सूचना लिखिए।

17] निम्नलिखित विषयों में से किसी एक विषय पर 60 शब्दों में एक विज्ञापन लिखिए। (3X1=3)

[1] आप अपनी पुरानी कार बेचना चाहते हैं, इसके लिए एक विज्ञापन तैयार कीजिए।

अथवा

[2] 'नवांकुर प्ले स्कूल' में प्री - प्राइमरी से पाँचवी कक्षा तक के दाखिले शुरू हो गए हैं। इस स्कूल के लिए एक विज्ञापन तैयार कीजिए।

प्रश्न 18 निम्नलिखित दो प्रश्नों में से किसी एक प्रश्न का उत्तर (100 शब्दों) में लिखिए - (5x1=5)

[1] निम्नलिखित संकेत-बिन्दुओं के आधार पर एक लघु कथा लिखें।

एक लालची आदमी--- कड़ी तपस्या करना-- देवता का प्रसन्न होना --- वरदान देना--- जितनी दूर तक दौड़ोगे उतनी ज़मीन तुम्हारी ---दौड़ते रहना --- थककर गिर जाना ---मृत्यु होना।

अथवा

[2] अपने क्षेत्र में पार्क विकसित करने हेतु निगम उद्यान अधिकारी को एक ई-मेल लिखिए।

**General Instructions**

- This Question Paper has **5 Sections A, B, C, D and E**.
- Section A** has **20** Multiple Choice Questions (**MCQs**) carrying **1mark** each.
- Section B** has **5** Short Answer (**SA-I**) type questions carrying **2 marks** each.
- Section C** has 6 Short Answer (**SA-II**) type questions carrying **3 marks** each.
- Section D** has 4 Long Answer (**LA**) type questions carrying **5 marks** each.
- Section E** has **3 Case Based integrated** units of assessment (4 marks each) with **sub-parts** of the values of **1,1 and 2 marks** each respectively.
- All Questions are compulsory .However, **an internal choice in 2Qs of 2 marks, 2Qs of 3 marks and 2Qs of 5 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.**
- Draw neat figures wherever required. Take  $\pi = 22/7$  if not stated.

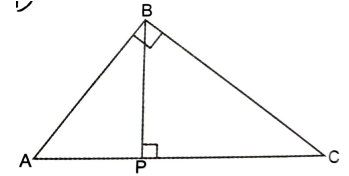
**SECTION A**

**[20x1=20]**

- 1] Arnav has 40 cm long red and 84 cm long blue ribbon. He cuts each ribbon into pieces such that all pieces are of equal length. What is the length of each piece?  
 (a) 4 cm as it is the HCF of 40 and 84  
 (b) 4 cm as it is the LCM of 40 and 84  
 (c) 12 cm as it is the LCM of 40 and 84  
 (d) 12 cm as it is the HCF of 40 and 84
- 2] The two consecutive odd positive integers, sum of whose squares is 290 are  
 (a) 13, 15 (b) 11, 13 (c) 7, 9 (d) 5, 7
- 3] A quadratic polynomial, whose zeroes are 5 and - 8 is  
 (a)  $x^2 + 13x - 40$  (b)  $x^2 + 4x - 3$  (c)  $x^2 - 3x + 40$  (d)  $x^2 + 3x - 40$
- 4] The value of k for which the lines  $(k + 1)x + 3ky + 15 = 0$  and  $5x + ky + 5 = 0$  are coincident is  
 (a) 14 (b) 2 (c) -14 (d) -2

- 5] Which term of the AP 21, 42, 63, 84, ... is 210?  
 (a) 9<sup>th</sup> (b) 10<sup>th</sup> (c) 11<sup>th</sup> (d) 12<sup>th</sup>

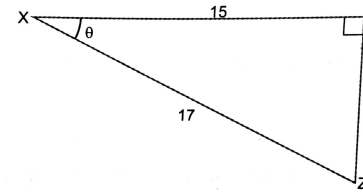
6] Observe the right triangle  $ABC$ , right angled at  $B$  as shown on the figure. If  $BP \perp AC$ , then which of the following is not correct?



- (a)  $\triangle APB \sim \triangle ABC$  (b)  $\triangle APB \sim \triangle BPC$   
 (c)  $BC^2 = CP \cdot AC$  (d)  $AC^2 = AB \cdot CB$

- 7] At point  $A$  on a diameter  $AB$  of a circle of radius 10 cm, tangent  $XAY$  is drawn to the circle. The length of the chord  $CD$  parallel to  $XY$  at a distance 16 cm from  $A$  is  
 (a) 8 cm (b) 10 cm (c) 16 cm (d) 18 cm

8] Consider the triangle shown below.



What are the values of  $\tan \theta$ ,  $\operatorname{cosec} \theta$  and  $\sec \theta$ ?

- (a)  $\tan \theta = \frac{8}{15}$ ,  $\operatorname{cosec} \theta = \frac{17}{8}$ ,  $\sec \theta = \frac{17}{15}$   
 (b)  $\tan \theta = \frac{8}{15}$ ,  $\operatorname{cosec} \theta = \frac{17}{15}$ ,  $\sec \theta = \frac{17}{8}$   
 (c)  $\tan \theta = \frac{17}{15}$ ,  $\operatorname{cosec} \theta = \frac{8}{15}$ ,  $\sec \theta = \frac{17}{8}$   
 (d)  $\tan \theta = \frac{8}{15}$ ,  $\operatorname{cosec} \theta = \frac{17}{15}$ ,  $\sec \theta = \frac{17}{17}$

9] A cylinder, a cone and a hemisphere are of the same base and of the same height. The ratio of their volumes is

- (a) 1:2:3 (b) 2:1: 3 (c) 3: 1:2 (d) 3:2:1

10] If the mean of data is 27 and mode is 45, the median is

- (a) 30 (b) 27 (c) 32 (d) 33

11] If a letter of English alphabet is chosen at random, then the probability that the letter is a consonant is

- (a)  $\frac{21}{23}$  (b)  $\frac{10}{13}$  (c)  $\frac{21}{26}$  (d)  $\frac{5}{26}$

12] The centre of a circle whose end points of a diameter are (-6, 3) and (6, 4) is

- (a) (8, -8) (b) (4, 7) (c)  $(0, \frac{7}{2})$  (d)  $(4, \frac{7}{2})$

13] If  $\sin \theta = \frac{1}{3}$ , the value of  $(2\cot^2\theta + 2)$  is

- (a) 16 (b) 20 (c) 12 (d) 18

14] The line segment joining the points P (-3, 2) and Q(5, 7) is divided by the y-axis in the ratio

- (a) 3:1 (b) 3: 5 (c) 3:2 (d) 3: 6

15] Which of the following is most affected by extreme observations?

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

16] The height of the wall when a ladder whose foot is 7 m away from the wall makes an angle of  $45^\circ$  with the wall is

- (a)  $\frac{7\sqrt{2}}{2}m$  (b)  $7\sqrt{2}m$  (c) 7 m (d) 14 m

17] The difference between the circumference and radius of a circle is 37 cm. The area of circle is

- (a)  $111 \text{ cm}^2$  (b)  $184 \text{ cm}^2$  (c)  $154 \text{ cm}^2$  (d)  $259 \text{ cm}^2$

18] The time in seconds, taken by 150 athletes to run a 110 m hurdle race are tabulated below:

Class	13.8-14	14-14.2	14.2-14.4	14.4-14.6	14.6-14.8	14.8-15
Frequency	2	4	5	71	48	20

The number of athletes who completed the race in less than 14.6 seconds is

- (a) 11 (b) 71 (c) 82 (d) 130

**DIRECTION: In question numbers 19 and 20, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct option.**

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

19] **Assertion (A):** For any two positive integers  $a$  and  $b$ ,

$$\text{HCF}(a, b) \times \text{LCM}(a, b) = a \times b.$$

**Reason (R):** The HCF of two numbers is 5 and their product is 150. Then their LCM is 40.

20] **Assertion(A):** The value of  $y$  is 6, for which the distance between the points  $P(2, -3)$  and  $Q(10, y)$  is 10.

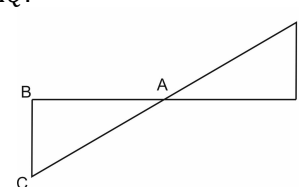
**Reason (R):** Distance between two given points A ( $x_1, y_1$ ) and B ( $x_2, y_2$ ) is given by  $AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ .

### SECTION B

[5x2=10]

21] Do the equations  $4x + 3y = 6$  and  $12x + 9y = 15$  represent a pair of coincident lines? Justify your answer.

22] In the given figure  $\triangle ACB \sim \triangle APQ$ . If  $BC = 8 \text{ cm}$ ,  $PQ = 4 \text{ cm}$ ,  $BA = 6.5 \text{ cm}$ ,  $AP = 2.8 \text{ cm}$ , find  $CA$  and  $AQ$ .



23] If two tangents are inclined at an angle of  $60^\circ$  are drawn to a circle of radius 3 cm then find the length of each tangent.

24] If  $4 \tan \theta = 3$ , Evaluate:  $\left(\frac{4 \sin \theta - \cos \theta + 1}{4 \sin \theta + \cos \theta + 1}\right)$

25] The radii of two circles are 19 cm and 9cm. Find the radius of the circle which has circumference equal to the sum of the circumferences of the two circles.

### SECTION C

[6x3=18]

26] Given that  $\sqrt{2}$  is irrational, prove that  $(5+3\sqrt{2})$  is an irrational number.

Further, give an example to show that the product of a rational number and an irrational number may be a rational number.

27] If zeroes of the polynomial  $6x^2 + 13x + 2a$  are  $\alpha$  and  $\frac{1}{\alpha}$ , then find the value of  $a$  and also find the zeroes of the polynomial.

28] Half the perimeter of a garden, whose length is 4 more than its width is 36 m. Find the dimensions of the garden.

OR

The coach of a cricket team buys 7 bats and 6 balls for ₹3800. Later, she buys 3 bats and 5 balls for ₹1750. Find the cost of each bat and each ball.

29] If all sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

30] Prove that:  $\frac{\tan \theta}{\sec \theta - 1} + \frac{\tan \theta}{\sec \theta + 1} = 2 \operatorname{cosec} \theta$

OR

Prove that:  $\frac{\sin \theta}{1 + \cos \theta} + \frac{1 + \cos \theta}{\sin \theta} = 2 \operatorname{cosec} \theta$

31] One card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing:

- (a) an ace (b) '2' of spades (c) '10' of a black suit.



**SECTION D**

[5x4=20]

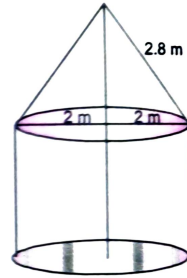
32] Speed of a boat in still water is 15 km/h. It goes 30 km upstream and returns back at the same point in 4 hours 30 minutes. Find the speed of the stream.

**OR**

Find two consecutive odd natural numbers, the sum of whose squares is 394.

33] In  $\Delta ABC$ , from  $A$  and  $B$  altitudes  $AD$  and  $BE$  are drawn. Prove that  $\Delta ADC \sim \Delta BEC$ . Is  $\Delta ADB \sim \Delta AEB$  and  $\Delta ADB \sim \Delta ADC$  ?

34] A tent is in the shape of a cylinder surmounted by a conical top. If the height and diameter of the cylindrical part are 2.1 m and 4 m and the slant height of the top is 2.8 m, find the area of the canvas used for making the tent. **(Note the base of the tent will not be covered with canvas.)**  
Also, find the cost of the canvas of the tent at the rate of 500 per m.



**OR**

A sphere of radius 6 cm, is dropped in a right circular cylindrical vessel, partly filled with water. If the sphere is completely submerged in water, the water level in the cylindrical vessel rises by  $\frac{32}{9}$  cm, i.e. its height becomes  $\frac{32}{9}$  cm. Find the diameter of the cylindrical vessel.

35] If the median of the following frequency distribution is 35, then find the value of  $x$ .

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	2	3	$x$	6	5	3	2

**SECTION E**

[3x4=12]

36] Your elder brother wants to buy a car and plans to take loan from a bank for his car. He repays his total loan of ₹1,18,000 by paying every month starting with the first instalment of ₹1000. If he increases the instalment by ₹100 every month, answer the following:

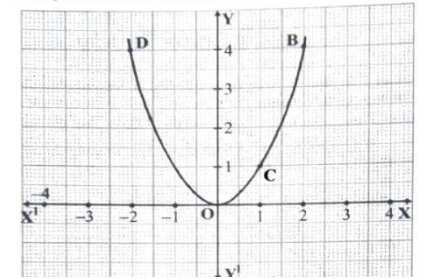


- (a) The amount paid by him in 30th instalment is?
- (b) What amount does he still have to pay after 30th instalment?
- (c) The amount paid by him in 30 instalments is?

**OR**

The ratio of the 1st instalment to the last instalment if total instalments are 40.

37] A bee flies after every 3 seconds. Mr. Suraj recorded the position of the bee by the graph paper. At 11:00 am, the Location of bee was recorded at the point B. After 3 seconds the bee has moved to the position C.



(a) What is the distance between points B and C?

(b) At some point of time, the bee sits on the point D (-2, 4). The point which divides C and D in the ratio 1:2 will be?

(c) The area of the triangle formed by joining the points B, D and Origin is?

**OR**

The point on the y-axis, which is equidistant from B and C is?

38] Kapil is standing in the balcony of his house. He observes two cars, one on either side (say A and B).



**Based on above information answer the following questions.**

- (a) If the height at which he is standing is 3 m and the distance of one of the cars from the foot of the building is also 3m, then what is the angle of depression of this car as observed by him?
- (b) If the ratio of the height of a tower and the length of its shadow is  $\sqrt{3}:1$ , then what is the angle of elevation of sun?
- (c) At an instant, the angle of depression of two cars were found to be  $30^\circ$  and  $60^\circ$  respectively. If the height at which he is standing is 3 m, find the distance between the two cars.

**OR**

If the height of a building and the distance of the point of observation from its foot both are increased by 10%, then what is the angle of elevation of its top?

**SECTION-A**

Section A consists of 20 questions of 1 mark each.

1. The largest number which divides 615 and 963 leaving remainder 6 in each case is

- (a) 82 (b) 95  
(c) 87 (d) NONE OF THESE

2. The value of k for which the pair of equation  $kx - y = 2$  and  $6x - 2y = 3$  has unquesolution

- (a)  $k = 3$  (b)  $k \neq 3$   
(c)  $k \neq 0$  (d) NONE OF THESE

3. The exponent of 2 in prime factorisation of 144 is

- (a) 4 (b) 5  
(c) 6 (d) NONE OF THESE

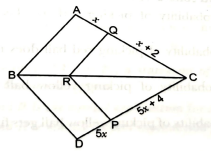
4. If the point P(k, 0) divides the line segment joining the points A(2,-2) and B(-7, 4) in the ratio 1:2, then the value of k is

- (a) 1 (b) 2  
(c) - 1 (d) NONE OF THESE

5. In the given figure, QR || AB, RP || BD, CQ = x + 2, QA = x, CP = 5x + 4, PD = 3x.

The value of x is

- (a) 1 (b) 6  
(c) 3 (d) NONE OF THESE



6. The value of  $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}}$  is

- (a)  $\cot \theta - \operatorname{cosec} \theta$  (c)  $\operatorname{cosec} \theta + \cot \theta$   
(b)  $\operatorname{cosec}^2 \theta + \cot^2 \theta$  (d) NONE OF THESE

7. If  $x = a \cos \theta$  and  $y = b \sin \theta$ , then the value of  $b^2x^2 + a^2y^2$  is

- (a)  $a^2 + b^2$  (b)  $\frac{a^2}{b^2}$   
(c)  $a^2b^2$  (d) NONE OF THESE

8. The ratio of outer and inner perimeters of circular path is 23:22. If the path is 5 m wide, the inner circle is

- (a) 55 m (b) 110 m  
(c) 220 m (d) NONE OF THESE

9. A fountain is enclosed by a circular fence of circumference 11 m and is surrounded by a circular path. The circumference of the outer boundary of the path is 16 m. A gardener increased the width of the pathway by decreasing the area enclosed by the fence such that the length of the fence is decreased by 3 m. The path is to be covered by the bricks which cost ₹125 per m<sup>2</sup>. What will be the total cost, to the nearest whole number, required to cover the area by the bricks? (Use  $\pi = \frac{22}{7}$ )

- (a) ₹1,910 (b) ₹9,878  
(c) ₹39,772 (d) NONE OF THESE

10. Smita has a bag containing 1 red, 1 green, and 1 yellow, 1 black and 1 blue ball. She randomly picks the ball from the bag notes its colour and keeps it back in the bag. She repeats this 40 times. The table shows the number of times each colour ball she gets. The number of times the black ball is picked is missing in the table.

Red ball	Green ball	Yellow ball	Black ball	Blue ball
10	6	5	?	10

She then repeats the experiment 10 more times and gets red ball twice, green ball once, yellow ball thrice, black ball once and blue ball thrice.

Which of these is a valid conclusion as the number of trials of the experiment increases?

- (a) The empirical probability of picking red ball becomes equal to its theoretical probability.  
(b) The empirical probability of picking red ball does not get closer to its theoretical probability.  
(c) The empirical probability of picking yellow ball gets closer to its theoretical probability.  
(d) The empirical probability of picking yellow ball gets further away from its theoretical probability.

11. Which of the following is not a quadratic equation?

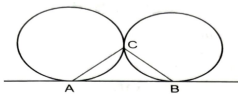
- (a)  $2(x - 1)^2 = 4x^2 - 2x + 1$  (b)  $2x - x^2 = x^2 + 5$   
(c)  $(\sqrt{2x + \sqrt{3}})^2 + x^2 = 3x^2 - 5x$  (d) NONE OF THESE

12. The 11th and 13th terms of an AP are 35 and 41 respectively, its common difference is

- (a) 38 (b) 32  
(c) 3 (d) NONE OF THESE

13. Two circles touch each other externally at C and AB is common tangent of circles, then  $\angle ACB$  is

- (a)  $70^\circ$  (b)  $60^\circ$   
(c)  $90^\circ$  (d) NONE OF THESE



14. Twelve solid spheres of the same size each having diameter 2 cm and height 16 cm. The total volume is

- (a) 14 cm (b) 36 cm  
(c) 28 cm (d) NONE OF THESE

15. A tangent is drawn from a point at a distance of 17 cm of circle (O, r) of radius 8 cm. The length of tangent is

- (a) 5 cm (b) 9 cm  
(c) 15 cm (d) NONE OF THESE

16. The radius of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is

- (a) 2.1 cm (b) 4.2 cm  
(c) 3.1 cm (d) NONE OF THESE

17. A 1.6 m tall girl stands at distance of 3.2 m from a lamp post and casts shadow of 4.8 m on the ground, then the height of the lamp post is

- (a) 8 m (b) 4 m  
(c)  $4\frac{2}{3}$  m (d) NONE OF THESE

18. The runs scored by a batsman in 35 different matches are given below:

Runs Scored	0-15	15-30	30-45	45-60	60-75	75-90
Frequency	5	7	4	8	8	3

Number of matches in which the batsman scored less than 60 runs are

- (a) 16 (b) 24  
(c) 8 (d) NONE OF THESE

**DIRECTION: In the question numbers 19 and 20, a statement of assertion (A) is followed by a statement of Reason (R).**

Choose the correct option.

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

19. Assertion (A): If  $\cos A + \cos^2 A = 1$  then  $\sin^2 A + \sin A^4 = 2$ .

Reason (R):  $1 - \sin^2 A = \cos^2 A$ , for any value of A.

20. Assertion (A): A bicycle wheel makes revolutions in covering 11 km. Then diameter of the wheel is 35 cm. Area of segment of a circle is

Reason (R):  $\frac{\theta}{360} \times \pi r^2 - \frac{1}{2} r^2 \sin \theta$ .

### SECTION-B

Section B consists of 5 questions of 2 marks each.

21. If the system of equations  $2x + 3y = 7$  and  $(a + b)x + (2a - b)y = 21$  has infinitely many solutions, then find a and b.

OR

Sumit is 3 times as old as his son. Five years later, he shall be two and a half times as old as his son. How old is Sumit at present?

22. Write the coordinates of a point on x-axis which is equidistant from the points (-3, 4) and (2, 5).

23. X is a point on the side BC of  $\triangle ABC$ . XM and XN are drawn parallel to AB and AC respectively meeting AB in N and AC in M. MN produced meets CB produced at T. Prove that  $TX^2 = TB \times TC$ .

24. Find the length of the tangent from an external point P at a distance of 20 cm from the centre of a circle of radius 12 cm.

OR

Two concentric circles are of radii 8 cm and 5 cm. Find the length of the chord of the large circle which touches the smaller circle.

25. The probability of selecting a blue marble at random from a jar that contains only blue, black and green marbles is  $\frac{1}{5}$ . The probability of selecting a black marble at random from the same jar is  $\frac{1}{4}$ . If the jar contains 11 green marbles, find the total number of marbles in the jar.

### Section C

Consists of 6 questions of 3 marks each.

26. Two numbers are in the ratio of 1: 3. If 5 is added to both the numbers, the ratio becomes 1: 2. Find the numbers.

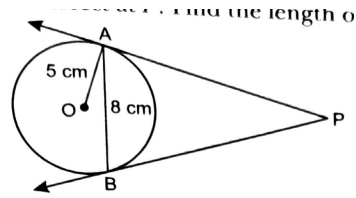
27. How many terms of the AP 9, 17, 25..., must be taken to give a sum of 636?

OR

How many terms of the series 54, 51, 48, ..... be taken so that, their sum is 513?  
Explain the double answer.

28. Find the coordinates of the points which divide the line segment joining A (-2, 2) and B (2, 8) into four equal parts.

29. In the given figure, AB is a chord of length 8 cm of a circle of radius 5 cm. The tangents to the circle at A and B intersect at P. Find the length of AP.



30. If  $\cot \theta = \frac{15}{8}$ , then evaluate  $\frac{(2+2 \sin \theta)(1-\sin \theta)}{(1+\cos \theta)(2-2 \cos \theta)}$

OR

If  $\tan \theta = \frac{a}{b}$ , prove that  $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta} = \frac{a^2 - b^2}{a^2 + b^2}$

31. If the mean of the following frequency distribution is 62.8, then find the missing frequency x:

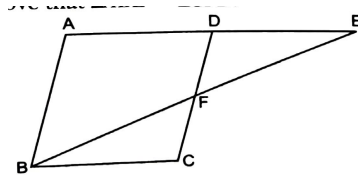
Class	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	5	8	X	12	7	8

### SECTION-D

Section D consists of 4 questions of 5 marks each.

32. A motorboat whose speed in still water is 9 km/h, goes 15 km downstream and comes back to the same spot, in a total time of 3 hours 45 minutes. Find the speed of the stream.

33. In the given figure, E is a point on side AD produced of a parallelogram ABCD and BE intersects CD at F. Prove that  $\triangle ABE \sim \triangle CFB$ .



34. The lower window of a house is at a height of 2 m above the ground and its upper window is 4 m vertically above the lower window. At certain instant, the angles of elevation of a balloon from these windows are observed to be  $60^\circ$  and  $30^\circ$ , respectively. Find the height of the balloon above the ground.

OR

As observed from the top of a lighthouse, 75 m high from the sea level, the angles of depression of two ships are  $30^\circ$  and  $45^\circ$ . If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two ships.

35. A toy is in the form of a hemisphere surmounted by a right circular cone of the same base radius as that of the hemisphere. If the radius of the base of the cone is 21 cm and its volume is  $\frac{2}{3}$  of the volume of the hemisphere, calculate the height of the cone and the surface area of the toy.

OR

A vessel full of water is in the form of an inverted cone of height 8 cm and the radius of its top, which is open, is 5 cm. 100 spherical lead balls are dropped into the vessel. One-fourth of the water flows out of the vessel. Find the radius of a spherical ball.

### SECTION-E

Case study based questions are compulsory.

Section E consists of 3 questions of 4 marks each & with an internal choice in marks questions. [1+1+2]

36. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 32 students in section A and 36 students in section B.



Based on the above information answer the following questions.



(i) What is the minimum number of books you will require for the class library, so that they can be distributed equally among students of Section A or Section B?

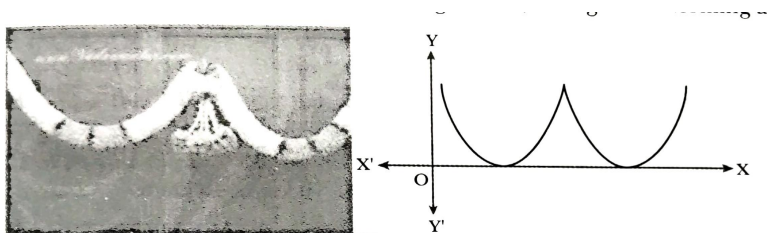
(ii) If the product of two positive integers is equal to the product of their HCF and LCM is true then, write HCF (32, 36).

(iii) Express 36 as a product of its primes.

**OR**

If  $p$  and  $q$  are positive integers such that  $p = ab^2$  and  $q = a^2b$ , where  $a, b$  are prime numbers, then write the LCM ( $p, q$ ).

37. The wall of room is decorated with beautiful garlands, each garland forming a parabola.



Based on the above information answer the following questions.

(i) What type of polynomial does a parabola represent?

(ii) Write a quadratic polynomial with the sum and product of its zeroes as 1 and -2.

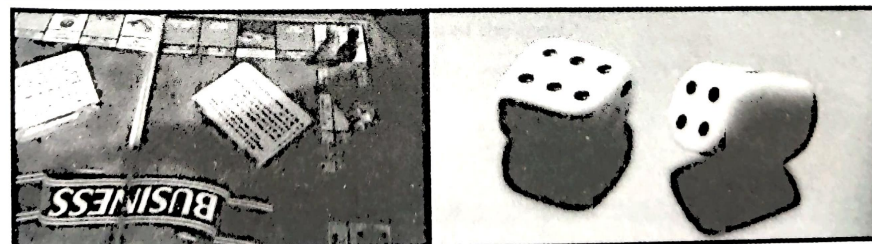
(iii) If one of the zeroes of the quadratic polynomial  $(k - 2)x^2 - 2x - 5$  is -1, then find the value of  $k$ .

**OR**

If  $\alpha, \beta$  are the zeros of the polynomial  $f(x) = x^2 - 7x + 12$  then find the value of

$$\frac{1}{\alpha} + \frac{1}{\beta}$$

38. Rahul and Ravi planned to play Business (board game) in which they were supposed to use two dice.



Based on the above information answer the following questions:

**Based on the above information, answer the following questions:**

(i) Ravi got first chance to roll the dice. What is the probability that he got the sum of the two numbers appearing on the top face of the dice as 8?

(ii) Rahul got next chance. What is the probability that he got the sum of the two numbers appearing on the top face of the dice as 13?

(iii) Now it was Ravi's turn. He rolled the dice. What is the probability that he got the sum of the two numbers appearing on the top face of the dice less than or equal to 12?

**OR**

Rahul got next chance. What is the probability that he got the sum of the two numbers appearing on the top face of the dice equal to 7?

General Instructions:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 Objective Type questions carrying 1 mark each.
4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

### SECTION A

(Select and write one most appropriate option out of the four options given for each of the questions 1 – 20)

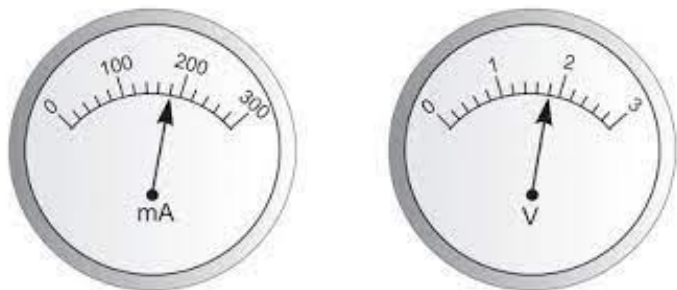
1. In which of the following compounds, — OH is the functional group?  
(a) Butanone (b) Butanol (c) Butanoic acid (d) Butanal
2. When lead nitrate powder is heated in a boiling tube, we observe:  
(a) Brown fumes of nitrogen dioxide  
(b) Brown fumes of lead oxide  
(c) Yellow fumes of nitrogen dioxide  
(d) Brown fumes of nitric oxide
3. The composition of *aqua regia* is  
(a) Dil. HCl : Conc. HNO<sub>3</sub> (3 : 1) (b) Conc. HCl : Dil. HNO<sub>3</sub> (3 : 1)  
(c) Conc. HCl : Conc. HNO<sub>3</sub> (3 : 1) (d) Dil. HCl : Dil. HNO<sub>3</sub> (3 : 1)

4. If copper is kept open in air, it slowly loses its shining brown surface and gains a green coating. It is due to the formation of  
(a) CuSO<sub>4</sub> (b) CuCO<sub>3</sub> (c) Cu(NO<sub>3</sub>)<sub>2</sub> (d) CuO
5. Purva was instructed to mix a sample of soil with water. She performed the act and the solid particles were allowed to settle. The clear supernatant solution turned the pH paper yellowish-orange. Which of the following would change the colour of this pH paper to greenish-blue?  
(a) Lemon juice (b) Vinegar (c) Common salt (d) An antacid
6. Harshit was asked to add sodium hydrogencarbonate to ethanoic acid in the laboratory. As soon as he added the former to the latter, a gas evolved. Which observation(s) is he supposed to notice if he performs further tests with the gas?  
(i) It turns lime water milky (ii) It extinguishes a burning stick  
(iii) It dissolves in sodium hydroxide solution (iv) It has a pungent odour  
(a) (i) and (ii) (b) (i), (ii) and (iii) (c) (ii), (iii) and (iv) (d) (i) and (iv)
7. Stainless steel is a very useful material for our life. In stainless steel, iron is mixed with  
(a) Ni, Cr (b) Cu, Cr (c) Ni, Cu (d) Cu, Au
8. Autotrophic organisms require ..... for their survival.  
(a) Only carbon dioxide (b) Water and sunlight  
(c) Both (a) and (b) (d) None of the above
9. From the mouth the food is taken to the stomach through -  
(a) Bile duct (b) Pancreas  
(c) Diaphragm (d) Oesophagus
10. In mammals the testes lie in scrotal sacs due to  
(a) Presence of urinary bladder  
(b) Presence of rectum  
(c) Long vas-deferens  
(d) Requirement of low temperature for spermatogenesis
11. Which of the following is heterozygous?  
(a) TTRR (b) ttrr (c) TT (d) Tt

12. By which method, asexual reproduction occurs in Amoeba

- (a) Fission (b) Budding (c) Germination (d) All of these

13. The current flowing through a resistor connected in an electrical circuit and the potential difference developed across its ends are shown by a milliammeter and voltmeter respectively as given below:



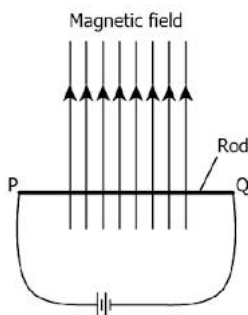
The resistance of the resistor is:

- (a) 25  $\Omega$  (b) 20  $\Omega$  (c) 15  $\Omega$  (d) 10  $\Omega$

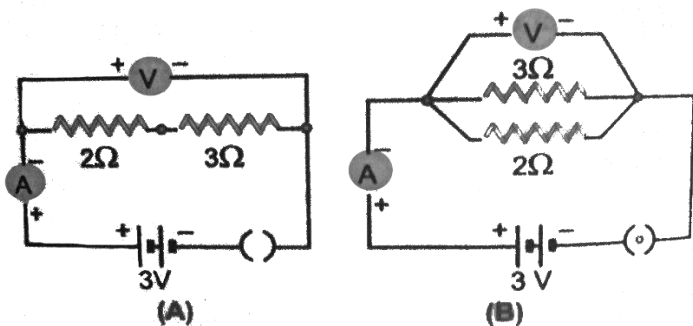
14. A metal rod PQ is placed in the magnetic field. The ends of the rod are connected with a battery using wires.

Where will the rod move?

- (a) upward  
(b) downwards  
(c) into the field  
(d) out of the field



15. For the two circuits (A) and (B) shown below, the voltmeter readings would be



- (a) 0 V in circuit (A) and 2 V in circuit (B)  
(b) 3 V in both the circuits  
(c) 0 V in circuit (A) and 3 V in circuit (B)  
(d) 3 V in circuit (A) and 0 V in circuit (B)

16. Frequency of electric supply in India is

- (a) 220 V (b) 60 Hz (c) 50 Hz (d) 110 V

Question No. 17 to 20 are Assertion-Reasoning based questions. In each of the following questions, two statements are given. One is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

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

17. **Assertion:** Lead pipes are generally used for transporting corrosive material in chemical industries.

**Reason:** Lead metal possesses corrosion-resistant properties.

18. **Assertion :** Surgical methods are most effective methods of contraception.

**Reason :** Surgical method blocks gametes transport and hence prevent fertilisation.

19. **Assertion :** Reflex actions are automatic and rapid responses to stimuli.

**Reason :** These actions are controlled by brain.

20. **Assertion:** If a leaky electrical appliance is grounded, then it can be safe to use it.

**Reason:** Earth acts as a huge conductor at zero potential.

### SECTION- B

(Question No. 21 to 26 are very short answer questions)

21. A gas is evolved when ethanol reacts with sodium. Name the gas evolved and also write the balanced chemical equation of the reaction involved. [ $\frac{1}{2} + 1\frac{1}{2} = 2$ ]

Match the reactions given in column (A) with the names given in column (B). [½X4=2]

Column (A)	Column (B)
(a) $\text{CH}_3\text{OH} + \text{CH}_3\text{COOH} \xrightarrow{\text{H}^+} \text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O}$	(i) Addition reaction
(b) $\text{CH}_2 = \text{CH}_2 + \text{H}_2 \xrightarrow{\text{Ni}} \text{CH}_3 - \text{CH}_3$	(ii) Substitution reaction
(c) $\text{CH}_4 + \text{Cl}_2 \xrightarrow{\text{Sunlight}} \text{CH}_3\text{Cl} + \text{HCl}$	(iii) Neutralisation reaction
(d) $\text{CH}_3\text{COOH} + \text{NaOH} \longrightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O}$	(iv) Esterification reaction

22. If YYRR is yellow round, what do the following represent?

Yyrr, yyRR

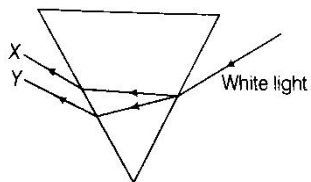
23. Discuss how the roles of vena cava and pulmonary veins are different from each other?

24. Mention any 2 strategies of plants to get rid of their wastes?

25. Why is the sky blue?

**OR**

In the given figure, the colours X and Y represent the extreme components of the spectrum. Identify X and Y.



26. Consider the following food chain which occurs in a forest:

Grass → Deer → Lion

If 10000 J of solar energy is available to the grass, how much energy would be available to the deer to transfer it to the lion?

(Question no. 27 to 33 are short answer type questions)

27. Vaniya placed copper powder in a china dish and it was strongly heated in air when compound X is formed. The compound X was insoluble in water but dissolved in dilute hydrochloric acid forming a greenish solution without evolution of any gas.

(i) What are the chemical formula and colour of compound X. [½+½=1]

(ii) Write the balanced chemical equation corresponding to the way X forms the green solution. [2]

28. Soaps and synthetic detergents are the chemical substances that improve the cleansing properties of water. Now answer the following:

(i) What is saponification? [1]

(ii) Mention an advantage of using detergent over soaps when used as a cleansing agent. [1]

(iii) Mention a limitation of using detergent as a cleansing agent. [1]

29. (i) What is the role of mucus in stomach?

(ii) Which digestive secretion does not contain any enzyme? Identify and write its function.

30. A lens produces a magnification of -0.5. If the focal length of the lens is 6 cm, draw a ray diagram to show the image formation in this case.

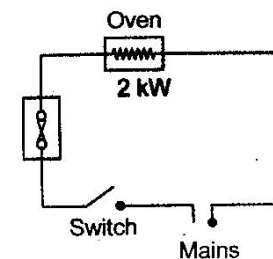
31. An object 1 cm high produces a real image 1.5 cm high when placed at a distance of 15 cm from a concave mirror. Calculate the position of the image and the magnification.

32. Rita usually helps her mother in the kitchen works. Her mother uses oven of 2 kW to bake cake duly protected by renewable fuse. One day the blown fuse was replaced with 5 A fuse by Rita.

(i) What is the domestic supply voltage used for the oven?

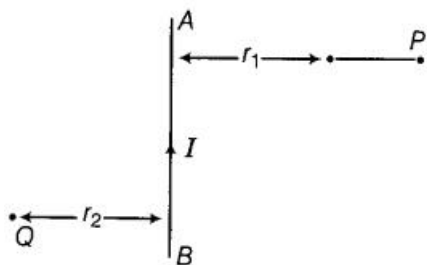
(ii) What is the normal circuit current expected to be?

(iii) What could happen as a result of the replacement made by Rita? [1+1+1]





AB is a current carrying conductor in the plane of the paper as shown in the given figure. What are the directions of the magnetic field produced by it at points P and Q? Given,  $r_1 > r_2$ , where will the strength of the magnetic field be larger? [1+1+1]



33. (i) Construct a terrestrial food chain comprising four trophic levels.  
 (ii) What happens when higher energy ultraviolet radiations act on the oxygen at the higher level of the atmosphere? [1+2]

### SECTION - D

(Question no. 34 to 36 are long answer questions.)

34. While studying the activity of metals a student performed the following experiment. He took four test tubes **X**, **Y**, **Z**, **W** and added 10 mL of aqueous solution of copper (II) sulphate into each of the tubes. He then added one small piece of zinc metal into tube **X**, aluminium into tube **Y**, iron metal into tube **Z** and silver metal into tube **W**. After 20 minutes he observed the colour changes.

- (i) In which tube, no change of colour occurred and why? [1]  
 (ii) What chemical change occurred in tube **Z**? Give balanced equation. [1+1=2]  
 (iii) What chemical change occurred in tube **Y**? Give balanced equation. [1+1=2]

OR

Explain the following: [1X5=5]

- (i) Reactivity of Al decreases if it is dipped in  $\text{HNO}_3$ .  
 (ii) Carbon cannot reduce the oxides of Na or Mg.  
 (iii) NaCl is not a conductor of electricity in solid state whereas it does conduct electricity in aqueous solution as well as in molten state.  
 (iv) Iron articles are galvanised.

(v) Metals like Na, K, Ca and Mg are never found in their free state in nature.

35. (i) Identify the asexual method of reproduction in each of the following organisms:

(a) Rose (b) *Rhizopus* (c) *Spirogyra*

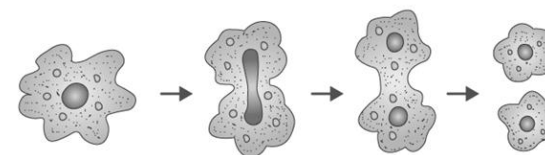
(ii) Draw a sectional view of human female reproductive system and label the part where:

- (a) Eggs develop  
 (b) Fertilization takes place  
 (c) Fertilized eggs get implanted.

[1.5+3.5]

OR

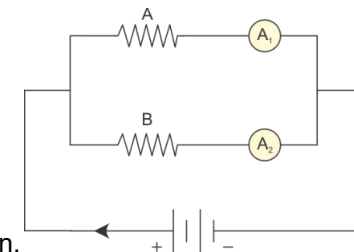
Study the diagram given below:



- (i) Identify the process and the organism which uses the above method of reproduction?  
 (ii) How is the above method different from the process of fragmentation?  
 (iii) Give two examples each of the plants having unisexual flowers. [1+3+1]

36. (i) An electrician has made electric circuit of a house in such a way that if a lamp gets fused in a room of the house, then all the lamps in other rooms of the house stop working. What is the defect in this type of circuit wiring? Give reason.

(ii) In the circuit diagram shown, the two resistance wires A and B are of the same length and same material, but A is thicker than B. Which ammeter  $A_1$  or  $A_2$  will



indicate higher reading for current? Give reason.

- (iii) You have two electric lamps having rating 40 W, 220 V and 60 W, 220 V. Which of the two has a higher resistance? [2+2+1]

### SECTION-E

37. Meena decided to investigate reaction involving the heating of iron (II) sulphate heptahydrate ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ) crystals. She took a small amount of the crystals in a dry test tube and heated the bottom of the tube strongly. She found that, upon strong heating, the colour of the crystals changed from light green to colourless to brown solid. The changes were also associated with an odour of burning sulphur.



- (i) Write down the balanced equation of the chemical reaction involved in the above chemical changes, where the colour changed from light green to brown.
- (ii) Name the type of reaction taking place inside the test tube.
- (iii) What accounts for the smell of burning sulphur?
- (iv) What are the chemical name and formula of the colourless solid formed at the intermediate step of the reaction?

**OR**

What are the chemical name and formula of the brown solid found at the completion of the reaction? [1+1+1+1=4]

38. In human beings, the sex of the individual is largely genetically determined. In other words, the genes inherited from our parents decide whether we will be a boy or a girl. But so far, we have assumed that similar gene sets are inherited from both parents.

- (i) What is the genetic constitution of human sperm?
- (ii) Why is female called as homogametic ?
- (iii) What is sex determination?
- (iv) An angiosperm plant having red flowers when crossed with the other having the same colour produced 40 progenies, out of which 30 plants were with red flowers, 10 plants were with white flowers. Now answer the following:  
Which trait is dominant and which one is recessive?

**OR**

What is this cross called as and what is its phenotypic ratio? [1+1+1+1]

39. Sahil's father is a photographer. He was engaged to cover the engagement ceremony of Sahil's friend Gulmohar. Sahil's father deputed his assistant Rohit for the assigned job. Rohit forgot his professional camera at home. He covered the ceremony with an ordinary camera without telling the facts to Sahil's father. When Gulmohar saw the preview, he was not happy with the results of the coverage. Sahil's father looked into the matter. He could notice the difference. He asked Sahil to tell the truth to Rohit. Sahil's father did not charge anything for the coverage.

- (i) What kind of lens is used in a magnifying glass? [1]
- (ii) What is the relation between Dioptre (D) and metre (m)? [1]
- (iii) Does concave lens have positive power or negative power? [1]
- (iv) Why is the linear magnification of a concave lens always positive but less than one? [1]

**OR**

- (iv) For a particular position of the object, the linear magnification of a convex lens is -1. What is the position of the object? [1]

**General Instructions:**

- i. Question paper comprises Six Sections – A, B, C, D, E and F. There are 37 questions in the question paper. All questions are compulsory.
- ii. Section A – From question 1 to 20 are MCQs of 1 mark each.
- iii. Section B – Question no. 21 to 24 are Very Short Answer Type Questions, carrying 2 marks each. Answer to each question should not exceed 40 word
- iv. Section C contains Q.25to Q.29 are Short Answer Type Questions, carrying 3 marks each. Answer to each question should not exceed 60 words
- v. Section D – Question no. 30 to 33 are long answer type questions, carrying 5 marks each. Answer to each question should not exceed 120 word
- vi. Section-E - Questions no from 34 to 36
- vii. Section F – Question no. 37 is map based, carrying 5 marks with two parts, 37a from History (2 marks) and 37b from Geography (3 marks)
- . viii. There is no overall choice in the question paper. However, an internal choice has been provided in few questions. Only one of the choices in such questions have to be attempted.
- ix. In addition to this, separate instructions are given with each section and question, wherever are case based questions with three sub questions and are of 4 marks each.

**Section A**

**MCQS [1X20]**

1. Vellum is \_\_\_\_\_ . 1
- a) Printing on palm leaves.
  - b) Printing on paper.
  - c) Parchment made from skin of animals.
  - d) Printing on cloth.

2. Why were the 'BiliothequeBleue' popular in France? Choose the correct option from the following. 1

- a) They were cheap and small books.
- b) They were promoted by the state.
- c) They were voluminous and colourful.
- d) They were printed on good quality paper.

3. Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R). 1

**Assertion (A):** Print popularised the ideas of the Enlightenment thinkers.

**Collectively their writings provided a critical commentary on tradition, superstition and despotism.**

**Reason (R):** They argued the rule of reason rather than custom and demanded that everything be judged through the application of reason and rationality.

**Choose the right option:**

- A. Both (A) and (R) are correct and (R) is the correct explanation of (A)
- B. Both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. (A) is correct, but (R) is not correct
- D. (R) is correct, but (A) is not correct.

4. Look at the picture given below. Identify the name of the painter from the following options: 1



- a) Abanindranath Tagore.
- b) Raja Ravi Verma.
- c) Nandalal Bose.
- d) Rabindranath Tagore

5. Identify the types of farming with the help of following information: 1

Farmers clear a patch of land and produce cereals and other food crops to sustain their family. When the soil fertility decreases, the farmers shift and clear a fresh patch of land for cultivation. Nature replenishes the fertility of the soil through natural processes; land productivity in this type of agriculture is low as the farmer does not use modern inputs.

- a) Primitive subsistence farming
- b) 'Slash and burn' agriculture
- c) Intensive subsistence farming
- d) Both (a) and (b)

6. Unclassed forest is mainly found in 1

- a) All north-eastern states and Gujarat
- b) Kerala and Tamil Nadu
- c) Punjab and Haryana
- d) West Bengal and Bihar

7. The main cause of land degradation in Punjab, Haryana, and Western Uttar Pradesh 1

- a) Mining
- b) Deforestation
- c) Over grazing
- d) Over irrigation

8. How many national parties are there in India?

- a) 10
- b) 7
- c) 12
- d) 20

9. Which of the following statements about India's Constitution is wrong?

- a) It prohibits discrimination on grounds of religion
- b) It gives official status to one religion
- c) It provides to all individuals freedom to profess any religion
- d) It ensures equality of citizens within religious communities

10. Which of the following is the capital city of Belgium?

- a) Bruges
- b) Ghent
- c) Brussels
- d) Antwerp

11. Which of the following pairs is not correctly matched?

- a) State Government – State list
- b) Central Government – Union list
- c) Local Government – Residuary powers
- d) Central and State governments – Concurrent powers

12. Consider the following two statements on power sharing and select the answer using the codes given below:

- A. Power sharing is good for democracy.
- B. It helps to reduce the possibility of conflict between social groups.

Which of these statements are true and false?

- a) A is true but B is false
- b) Both A and B are true
- c) Both A and B are false
- d) A is false but B is true

13. Who among the following fought against caste inequalities?

- a) Periyar Ramaswami Naiker
- b) Jotiba Phule
- c) B.R. Ambedkar
- d) All of them



### Section C

#### SHORT ANSWER BASED QUESTIONS [3X5=15]

25. Describe the nature of Non-Cooperation movement for the tribals. 3

OR

Who had designed the "Swaraj Flag by 1921? Explain the main features of this 'Swaraj Flag'? 1+2

26. "The distribution of Indian Railway network is influenced by the physiographic factors" Examine the statement. 3

27. In what ways multinational corporations (MNCs) different from other companies? Explain with example. 3

28. State any three differences between a federal form of a government and a unitary one. 3

29. "Credit has it's you own unique role for development." Justify the statement with arguments 3

### Section D

#### LONG ANSWER BASED QUESTIONS [5X4=20]

30. Briefly explain the process of unification of Italy. 5

OR

"Vernacular language and local; folklores carried modern nationalist message to large audiences, who were mostly illiterate." Justify with suitable examples.

31. Suggest any five measures to control industrial pollution in India. 5

OR

How are the industries responsible for environmental degradation in India? Explain with examples. 5

32. What was the Language Policy of India? 5

OR

How Communalism can take various forms in Politics?

33. Analyse any five positive effects of Globalisation on the Indian economy. 5

OR

"Credit sometimes pushes the borrower into a situation from which recovery is very painful." Support the statement with examples.

### Section E

#### CASE BASED QUESTIONS [4X3=12]

34. Read the source given below and answer the question that follows: 4

The silk routes are a good example of vibrant pre-modern trade and cultural links between distant parts of the world. The name 'silk routes' points to the importance of West-bound Chinese silk cargoes along this route. Historians have identified several silk routes, over land and by sea, knitting together vast regions of Asia and linking Asia with Europe and northern Africa. They are known to have existed since before the Christian Era and thrived almost till the fifteenth century. But Chinese pottery also travelled the same route as did textiles and spices from India and Southeast Asia. In return precious metals – gold and silver – flowed from Europe and Asia. Trade and cultural exchange always went hand in hand. Early Christian missionaries almost certainly travelled this route to Asia as did early Muslim preachers a few centuries later. Much before all this, Buddhism emerged from eastern India and spread in several directions through intersecting points on silk routes.

34.1 What is meant by silk routes?

34.2 Who else travelled these routes other than trader?

34.3 How did the silk routes help in global trade?

35. ] Read the given text and answer the following questions: 4

Energy is a basic requirement for economic development. Every sector of the national economy – agriculture, industry, transport, commercial and domestic – needs inputs of energy. The economic development plans implemented since Independence necessarily required increasing amounts of energy to remain operational. As a result, consumption of energy in all forms has been steadily rising all over the country.

In this background, there is an urgent need to develop a sustainable path of energy development. Promotion of energy conservation and increased use of renewable energy sources are the twin planks of sustainable energy

India is presently one of the least energy efficient countries in the world. We have to adopt a cautious approach for the judicious use of our limited energy resources. For example, as concerned citizens we can do our bit by using public transport systems instead of individual vehicles; switching off electricity when not in use, using power-saving devices and using non-conventional sources of energy. After all, “energy saved is energy produced”.

35.1 Why is energy a basic requirement for economic development? 1

35.2 What are the twin planks of sustainable energy? 1

35.3 What are the cautious approaches that can be adopted for judicious use of our limited energy? 2

**36. Read the given extract and answer the following questions. 4**

**The Belgian leaders recognised the existence of regional differences and cultural diversities. Between 1970 and 1993, they amended their constitution four times so as to work out an arrangement that would enable everyone to live together within the same country. The arrangement they worked out is different from any other country and is very innovative. Here are some of the elements of the Belgian model:**

**Constitution prescribes that the number of Dutch and French-speaking ministers shall be equal in the central government. Some special laws require the support of the majority of members from each linguistic group.**

**Many powers of the central government have been given to state governments of the two regions of the country. The state governments are not subordinate to the Central Government.**

**Brussels has a separate government in which both the communities have equal representation. The French-speaking people accepted equal representation in Brussels because the Dutch-speaking community has accepted equal representation in the Central Government.**

- **Apart from the Central and the State Government, there is a third kind of government. This ‘community government’ is elected by people belonging to one language community – Dutch, French and German-speaking – no matter where they live. This government has the power regarding cultural, educational and language-related issues.**

**Answer the following MCQs by choosing the most appropriate option:**

1. \_\_\_\_\_ and \_\_\_\_\_ dealt with the question of power-sharing differently.
  - a) India, Srilanka
  - b) Belgium, Sri Lanka
  - c) Wallonia, Brussels
  - d) Flemish, Wallonia
2. Which of the following is not the element of “Belgian model”?
  - a) Equal number of ministers for both the groups
  - b) Setting up of Community Government
  - c) More power to the central government
  - d) Equal representation at the state and central level
3. “Apart from the Central and the State Government, there is a third kind of government”. Which of the following is incorrect with respect to this?
  - a) The unique government is Community Government
  - b) A single social group is given powers to handle community-related affairs
  - c) Elected by people belonging to Dutch, French and German-speaking
  - d) Power regarding cultural, educational and language-related issues
4. Which of the following title best describes the given passage?
  - a) The ethnic composition of Belgium
  - b) Accommodation in Sri Lanka
  - c) Accommodation in Belgium
  - d) The ethnic composition of Sri Lanka

## SECTION F

### MAP SKILL BASED QUESTIONS [2+3=5]

**37. a. Two places A and B have been marked on the given outline map of India: Identify them and write their correct names on the lines drawn near them.**

- A. The city associated with the Jallianwala Bagh incident.
- B. The place where indigo planters organised a Satyagraha.

37 b. On the same outline map of India locate and label any THREE of the following with suitable symbols.

- a) Tarapur a Nuclear Power Station
- b) Thiruvananthapuram a Software Technology Park
- c) Bokaro a coal mine
- d) Netaji Subhash Chandra International Airport