

سینٹ میریز کالونیت گزراہائی سکول

دوسری سہ ماہی اگست تا اکتوبر

سلیبس ارڈو الف برائے جماعت ہشتم

نصوح اور سلیم کی گفتگو

حصہ نثر (سبق نمبر ۵

سوالات کے جوابات

۱۔ بیدارا نے سلیم کو جگا کر کیا پیغام دیا؟

جواب۔ بیدارا نے سلیم کو پیغام دیا کہ صاحبزادے اٹھیے، بالا خانے پر میاں بلا تے ہیں۔

۲۔ سلیم کی ماں نے سلیم کے ساتھ نصوح کے پاس جانے سے کیوں انکار کیا؟

جواب۔ سلیم کی ماں نے سلیم کے ساتھ نصوح کے پاس جانے سے اس لیے انکار کیا کہ اس کی گود میں لڑکی سوئی تھی۔

۳۔ سلیم اپنے بھائی کے ساتھ مدرسے کیوں نہیں جاتا تھا؟

جواب۔ سلیم اپنے بھائی کے ساتھ مدرسے اس لیے نہیں جاتا تھا کیونکہ اس کا بھائی امتحان کی تیاری کے سلسلے میں کافی دیر پہلے اپنے دوست کے گھر چلا جاتا تھا۔

۴۔ سلیم نے چار لڑکوں کی کیا خوبیاں بیان کیں۔

جواب۔ سلیم نے چار لڑکوں کے بارے میں بتایا کہ آپس میں چاروں بھائی ہیں۔ نہ کبھی لڑتے نہ جھگڑتے، نہ گالی بکتے، نہ قسم کھاتے، نہ جھوٹ بولتے اور نہ ہی کسی کو چھیڑتے یا آوازے کتے ہیں۔

۵۔ حضرت بی کون تھیں؟ اور انہوں نے سلیم کو کیا نصیحت کی؟

جواب۔ حضرت بی ان چاروں بھائیوں کی نانی اماں تھیں۔ انہوں نے سلیم کو نصیحت کی کہ بیٹا برامت ماننا یہ بھلے مانسوں کا دستور ہے کہ اپنے سے جو بڑا ہوتا ہے اسے سلام کر لیا کرتے ہیں۔

سبق نمبر ۶۔ پنچایت

سوالات کے جوابات

۱۔ جن شیخ اور الگو چودھری میں دوستی کا آغاز کب ہوا؟

جواب۔ جن شیخ اور الگو چودھری میں دوستی کا آغاز اس زمانہ میں ہوا جب دونوں لڑکے جن کے پدر بزرگوار شیخ جمہراتی کے روبرو زانوئے ادب تہ کرتے تھے۔

۲۔ شیخ جن کی بیوی کا بیوہ خالہ کی ملکیت کے بہہ نامے کی رجسٹری کے بعد خالہ سے کیسا سلوک تھا؟

جواب۔ شیخ جن کی بیوہ خالہ کی ملکیت کے بہہ نامے کی رجسٹری شیخ جن کے نام ہو جانے کے بعد شیخ جن کی بیوی کی خاطر داریاں ختم ہو گئی۔ خالہ کی شکایت پر شیخ جن بے اعتنائی سے پیش آیا۔

۳۔ الگو چودھری کے بیچ مقرر ہونے پر شیخ جن کیوں خوش تھا؟

جواب۔ الگو چودھری کے بیچ مقرر ہونے پر شیخ جن اس لیے خوش تھا کیونکہ اس کی الگو چودھری کے ساتھ دوستی تھی اور جن کے خیال میں تھا کہ الگو چودھری فیصلہ کرتے وقت دوستی کا خیال کرتے ہوئے اس کے حق میں فیصلہ سنائے گا۔

۴۔ الگو چودھری نے کیا فیصلہ دیا۔

جواب۔ الگو چودھری نے فیصلہ سنایا۔ " شیخ جن، پنچوں نے اس معاملے پر اچھی طرح غور کیا۔ زیادتی سراسر تمہاری ہے۔ کھیتوں سے معقول منافع ہوتا ہے۔ تمہیں چاہیے کہ خالہ جان کے ماہوار گزارے کا بندوبست کر دو۔ اس کے سوا اور کوئی صورت نہیں۔ اگر تمہیں منظر نہیں تو یہ نام منسوخ ہو جائے گا۔"

۵۔ الگو چودھری کا فیصلہ سن کر شیخ جنم کا ردعمل کیا تھا؟

جواب۔ جنم نے فیصلہ سنا تو سناٹے میں آ گیا۔ احباب سے کہنے لگا۔ "بھئی اس زمانے میں یہی دوستی ہے کہ جو اپنے اوپر بھروسا کرے اس کی گردن پر چھری پھری جائے"

۶۔ الگو چودھری نے سمجھو سیٹھ کو نیل کیوں فروخت کیا؟

جواب۔ الگو چودھری نے میلے سے دو نیل خریدے تھے۔ ایک نیل مر گیا۔ دوسرا اس کے کسی کام کا نہ تھا۔ اس کا جوڑا ڈھونڈنا مگر نہ ملا۔ ناچار اس بیچنے کی صلاح ہوئی۔

۷۔ الگو چودھری اور سمجھو سیٹھ نے کون سا تنازع پنچایت کے سامنے پیش کیا؟

جواب۔ الگو چودھری اور سمجھو سیٹھ نے نیل کا تنازع پنچایت کے سامنے پیش کیا۔

۸۔ شیخ جنم نے فیصلہ سناٹے ہوئے انصاف کے اصولوں کو کہاں تک پورا کیا؟

جواب۔ شیخ جنم کو اپنی عظیم الشان ذمہ داری کا احساس تھا۔ اس نے انصاف کے تمام اصولوں کو پورا کیا۔

۹۔ سمجھو سیٹھ نے الگو چودھری سے خریدے ہوئے نیل کے ساتھ کیسا سلوک کیا؟

جواب۔ سمجھو سیٹھ نیل کو منڈی لے گئے۔ وہاں کچھ سوکھا بھس ڈال دیا اور غریب جانور ابھی دم بھی نہ لینے پاتا تھا پھر جوت دیا

مہینے بھر میں بیچارے کا کچومر نکل گیا۔ یکے کا جوا دیکھتے ہی بے چارے کا ہاؤ چھوٹ جاتا، ایک قدم چلنا محال تھا۔

ہڈیاں نکل آئی تھیں، لیکن اصیل جانور، مار کی تاب نہ تھی۔ ایک دن چوتھے کھیوے میں سیٹھ جی نے دونا

بوجھ لادا، دن بھر کا تھکا جانور، پیر مشکل سے اٹھتے تھے۔ اس پر سیٹھ جی کوڑے رسید کرنے لگے۔ نیل

جگر توڑ کر چلا۔ کچھ دور دوڑا۔ چاہا کہ ذرا دم لے، ادھر سیٹھ جی کو گھر پہنچنے کی جلدی تھی، کئی کوڑے

بے دردی سے لگائے، نیل نے ایک بار پھر زور لگایا، مگر طاقت نے جواب دے دیا۔ زمین پر گر پڑا اور

ایسا گرا کہ پھر نہ اٹھا۔

سبق نمبر ۷ آرام و سکون

سوالات کے جوابات

۱۔ روزانہ آرام و سکون نہ کیا جائے تو اس کا کیا نتیجہ نکلتا ہے؟

جواب۔ ہر روز تھوڑا تھوڑا وقت آرام و سکون کے لیے نہ نکالا جائے تو پھر بیمار پڑ کر بہت زیادہ وقت نکالنے کی ضرورت پڑ جاتی ہے۔

۲۔ بیماری کے باوجود میاں دفتر جانے کے لیے کیوں تیار ہو جاتا ہے؟

جواب۔ بیماری کے باوجود میاں دفتر جانے کے لیے اس لیے تیار ہو جاتا ہے کیونکہ ڈاکٹر نے انہیں مکمل آرام کرنے کا مشورہ

دیا تھا۔ اور یہ بھی تاکید کی ان کے آس پاس شور و غل بالکل نہ ہو۔ لیکن صورت حال بالکل مختلف تھی۔ اور ان

کے آس پاس شور ہی ہوتا رہا اور کسی نے ان کے آرام و سکون کا خیال نہ رکھا۔

۳۔ اس ڈرامے سے ہمیں کیا سبق ملتا ہے؟

جواب۔ اس ڈرامے سے ایک تو یہ سبق ملتا ہے کہ روزانہ تھوڑا تھوڑا آرام کر لینے سے انسان بیمار ہونے سے بچ

جاتا ہے اور دوسرا سبق یہ ملتا ہے کہ اگر گھر میں کوئی بیمار شخص ہو تو گھر والوں کو شور کرنے کی بجائے اس

کے مکمل آرام و سکون کا خیال رکھنا چاہیے۔ ہمسائے میں اگر کوئی بیمار ہے تو بجا شور کر کے اسے تنگ نہیں کرنا

۴۔ بہت زیادہ شور بھی ماحولیاتی آلودگی کا سبب بنتا ہے۔ شور کی آلودگی سے صحت پر کیا اثر پڑتا ہے ؟
جواب۔ اہرین نفسیات کے مطابق شور کام کرنے اور نیند کے دوران پر سکون ماحول میں خلل کا باعث ہی نہیں بنتا ہے۔ بلکہ یہ انسانی نفسیات اور صحت پر بھی گہرے منفی اثرات ڈالتا ہے۔ اعصاب پر اس کا برا اثر پڑتا ہے۔ شور کی آلودگی کئی قسم کی بیماریوں کا باعث بنتی ہے۔ مثلاً ذہنی دباؤ، سماعت پر برا اثر، بہرہ پن، سردرد، ہائی بلڈ پریشر وغیرہ۔

۵۔ صحت مند رہنے کے لیے کیا باتیں ضروری ہیں ؟
جواب۔ صحت مند رہنے کے لیے آرام و سکون کا خیال رکھا جائے اور متوازن غذا کھائی جائے۔
۶۔ مہسائے کی کون سی حرکت سے میاں کے آرام میں خلل پڑ رہا تھا ؟
جواب۔ مہسائے کے ہارمونیم اور گانے کی آواز سے میاں کے آرام میں خلل پڑ رہا تھا۔

(حصہ نظم) برسات کی بہاریں

| الفاظ | معنی | الفاظ | معنی |
|---------|---------------------|---------------|---------------------------|
| لہلہاہٹ | پودوں کا ہواسے ہلنا | جھجھاہٹ | روشن، چمکنا |
| مست | نشے میں چور، مدہوش | دھو میں چانا | ہنگامہ کرنا |
| ہر آن | ہر لمحہ | سبحان | پاک، اللہ تعالیٰ کی تعریف |
| کاہی | ہلکا سبز رنگ | ماہ تابہ ماہی | دنیا میں موجود ہر چیز |
| گھات | موقع، انداز | ابر | بادل |

سوالات کے جوابات

- ۱۔ پہلے بند میں کون سے قافیے استعمال ہوئے ہیں ؟
 - ۲۔ تیسرے بند میں موجود ردیف کی نشاندہی کریں ؟
 - ۳۔ چوتھے بند میں کون سا لفظ بطور ردیف استعمال ہوا ہے ؟
 - ۴۔ تیز اللہ تعالیٰ کی عظمت کیسے بیان کرتے ہیں ؟
 - ۵۔ گلزار کے بھگینے اور سبزے کے نہانے سے کیا مراد ہے ؟
 - ۶۔ " قدرت کے بچھ رہے ہیں ہر جا ہر پھونے " سے کیا مراد ہے ؟
- جواب۔ ۱۔ برسات، باغات، قطرات، گھات
جواب۔ ۲۔ بچھونے
جواب۔ ۳۔ ہی
جواب۔ ۴۔ تیز سبحان تیری قدرت کی پکار سے اللہ تعالیٰ کی عظمت کے گن گاتے ہیں۔
جواب۔ ۵۔ باغات برسات کی بارش سے تر ہو جاتے ہیں اور سبزہ بارش سے نہا جاتا ہے۔ اور اس پر نکھار آ جاتا ہے۔
جواب۔ ۶۔ قدرت نے ہر جگہ سبزے کے بستر سے بچھا دیئے ہیں اور ہر جگہ سبزہ ہی سبزہ ہو جاتا ہے۔

برسات کی بہاریں کا خلاصہ۔

شدید گرمیوں کے بعد جب برسات کا آغاز ہوتا ہے تو لوگ سکھ کا سانس لیتے ہیں۔ اس وقت کی کیفیات کو اس نظم میں بیان کیا گیا ہے۔ برسات کی آمد کے ساتھ ہی فضاؤں میں خوشی کی لہر دوڑنے لگتی ہے۔ سبزے کا لہلہنا، مردہ پیاسی زمین کا جی اٹھنا گویا برسات کی دلفریاں ہیں۔ باغ، باغیچے، گھروں کے صحن، گلیوں، سڑکوں کے کنارے دھلے دھلائے سبزے سے بھر جاتے ہیں۔ طرف سبزے کے بستر بچھ جاتا ہے، شہر، جنگل، صحرا، سبزے کا رنگ ہر جگہ ہوتا ہے۔ گھٹائوں، جھمبوں، جھمبوں کے

آتی ہیں تو اس کی بارشوں سے کائنات کی ہر شے تروتازہ ہو جاتی ہے۔ یہ رنگارنگی اللہ کی قدرت کا بہت بڑا انعام ہے۔ برسات میں ساری مخلوق اللہ کی کارگیری کی گن گاتی ہے۔ تیز اللہ کی تعریف بیان کرتے ہیں۔ گویا برسات کا موسم قدرت کے انعامات میں سے ایک بہت بڑا انعام ہے۔

| رخ و زلف پر جان کھویا کیا | | خواجہ حیدر علی آتش | |
|---------------------------|------------------|---------------------|--------|
| معنی | الفاظ | معنی | الفاظ |
| بال | زلف | چہرہ | رخ |
| محبوب کے دانتوں کی خوبی | وصفِ داندانِ یار | آنسو | اشک |
| شاعری کی کھیتی | کشتِ سخن | ٹھوڑی پر موجود گڑھا | زخندان |
| ہل چلانا | جوڑنا کیا | نصیب | بخت |

سوالات کے جوابات

- ۱۔ شاعر نے ہمیشہ کس کے وصف لکھے ہیں؟
 - ۲۔ شاعر کی عمر کیسے بسر ہوئی؟
 - ۳۔ شاعر نے اپنی کشتِ سخن کے بارے میں کیا کہا ہے؟
 - ۴۔ برہمن کو کس بات کی حسرت رہی؟
 - ۵۔ شاعر کا قلم کیا کام کرتا ہے؟
 - ۶۔ پانچویں شعر میں شاعر نے کیا استعارہ استعمال کیا ہے؟
 - ۷۔ غزل کے پانچ قوافی لکھیں۔
- جواب۔ شاعر نے ہمیشہ داندانِ یار کے وصف لکھے ہیں۔
- جواب۔ شاعر ہمیشہ مشکلات اور مصائب کے سبب جاگتا رہا۔ لیکن اُس کا مقدر سویا رہا۔
- جواب۔ شاعر نے اپنی کشتِ سخن کے بارے میں کہا کہ وہ ہمیشہ سر سبز رہی۔
- جواب۔ برہمن کو بتوں کے بولنے کی حسرت رہی۔
- جواب۔ شاعر کا قلم محبوب کی تعریف میں موتی پروتا ہے۔
- جواب۔ پانچویں شعر میں شاعر نے اپنے محبوب کے لیے بت کا استعارہ استعمال کیا ہے۔ محبوب کی بت کی طرح خاموش رہتا ہے۔
- جواب۔ کھویا ، رویا ، سویا ، بویا ، ڈبویا

دیئے گئے تمام کام کو زبانی یاد کریں۔ اور مندرجہ ذیل اسباق کے خلاصے لکھیں اور زبانی یاد کریں۔

ہجرت نبوی ﷺ ، مرزا غالب کے عادات و خصائل ، کابلی ، شاعروں کے لطفے ، نصح اور سلیم کی گفتگو

اُردو (ب)

کہانیاں۔ سچ کی برکت ، اتفاق کی برکت ، نا اتفاقی کا انجام ، جھوٹ کی سزا ، درخواستیں ۔ ضروری کام کے لیے ، ڈاکے کی شکایت کے لیے راشن ڈپو کے خلاف ، مکالمے ۔ درزی خانے میں ، تاریخ پاکستان ، ہوٹل میں ، خطوط ۔ آپا کے نام خط ، چھوٹے بھائی کے نام دوست کے نام خط ، ہمسائے کے نام ، مذکر مونث ۔ صفحہ نمبر ۱۳ ، ۲۷ ، ضرب الامثال ۔ ۳۰ تا ۴۰ ، واحد جمع صفحہ نمبر ۳۱ ، ۳۲

مترادف و متضاد الفاظ ۳۰

دیئے گئے تمام کام کو زبانی یاد کریں۔

سینٹ میریز گرلز ہائی سکول گوجرانوالہ

جماعت ہشتم پنک / گرین / بیلو

(پہلی سہ ماہی)

سلیپس اُردو الف

سبق نمبر ۲ - مرزا غالب کے عادات و خصائل

مختصر جواب دیں -

۱- مرزا غالب کیسے اخلاق کے مالک تھے؟

جواب- مرزا غالب نہایت وسیع اخلاق کے مالک تھے - یعنی مرزا غالب بہت خوش اخلاق تھے۔ وہ ہر شخص سے بہت کشادہ پیشانی سے ملتے تھے۔

۲- دوستوں کو دیکھ کر غالب کی کیا حالت ہوتی تھی؟

جواب- مرزا غالب دوستوں کو دیکھ کر باغ باغ ہو جاتے تھے اور ان کی خوشی میں خوش اور غم میں غمگین ہوتے تھے -

۳- مرزا غالب کو کہاں کہاں سے خط آتے تھے؟

جواب- مرزا غالب کے نہ صرف دہلی بلکہ تمام ہندوستان میں بے شمار دوست تھے اور انہیں ہندوستان بھر سے خطوط آتے تھے -

۴- اکثر لوگ غالب کو کس طرح کے خط بھیجتے تھے؟

جواب، اکثر لوگ مرزا غالب کو بیرنگ خط بھیجتے تھے مگر ان کو کبھی ناگوار نہ گزرتا تھا

۵- سانکوں کے ساتھ مرزا غالب کا سلوک کیسا تھا؟

جواب- اگرچہ مرزا غالب کی آمدنی قلیل تھی مگر حوصلہ فراخ تھا - سائل ان کے دروازے سے خالی ہاتھ بہت کم جاتا تھا -

۶- دوستوں کے ساتھ مرزا غالب کا سلوک کیسا تھا؟

جواب- مرزا اپنے دوستوں کے ساتھ جو گردش روزگار سے بگڑ گئے تھے، نہایت شریفانہ طور سے سلوک کرتے تھے -

۷- مرزا غالب کے مزاج کی خاص خوبی کیا تھی؟

جواب- مرزا غالب کے مزاج کی خاص خوبی ظرافت تھی۔

۸- مرزا غالب کو کونسا پھل پسند تھا؟

جواب- مرزا غالب کو آم بہت پسند تھا -

۹- سبق مرزا غالب کے عادات و خصائل کس کتاب لیا گیا ہے؟

جواب- یہ سبق یادگار غالب سے لیا گیا ہے۔

۱۰- سبق مرزا غالب کے عادات و خصائل کے مصنف کون ہیں؟

جواب- اس سبق کے مصنف مولانا الطاف حسین حالی ہیں۔

سبق نمبر ۳ - کاہلی

مختصر جواب دیں۔

۱- دلی قوی کو بے کار چھوڑ دینے کا کیا مطلب ہے؟

جواب- دلی قوی کو بے کار چھوڑ دینے کا مطلب یہ ہے کہ انسان اپنی فکر، ذہانت اور عقل کو کام میں نہ لائے۔ اور زندگی میں کوئی

عملی و تعمیری کام سرانجام نہ دے جو سب سے بڑی کاہلی ہے۔

۲۔ انسان کب سخت کاہل اور وحشی ہو جاتا ہے؟

جواب۔ جب انسان اپنے دلی قوی کو بے کار چھوڑ دیتا ہے تو وہ سخت کاہل اور وحشی صفت ہو جاتا ہے۔

۳۔ کسی نہ کسی بات کی فکر و کوشش میں مصروف رہنا کیوں لازم ہے۔

جواب۔ کسی نہ کسی بات کی فکر و کوشش میں مصروف رہنا لازم ہے تاکہ ہم کو اپنی تمام ضروریات کے انجام کرنے کی فکر و مستعدی رہے۔

۴۔ قوم کی بہتری کیسے ممکن ہے؟

جواب۔ جب تک ہماری قوم سے کاہلی یعنی دل کو بے کار پڑا رکھنا نہ چھوڑے گا اس وقت تک ہم کو اپنی قوم کی بہتری کی توقع کچھ نہیں ہے۔

سبق نمبر ۴۔ شاعروں کے لطیفے

سوالات کے مختصر جوابات دیں۔

۱۔ خواجہ باسط نے میر اور مرزا کے کلام کے بارے میں کیا فرمایا؟

جواب۔ انہوں نے کہا کہ دونوں صاحب کمال ہیں مگر فرق اتنا ہے کہ میر صاحب کا کلام آہ ہے اور مرزا صاحب کا کلام واہ ہے

۲۔ شریف زادے کی غزل سن کر سودا نے کیا کہا؟

جواب۔ سودا نے تعریف کی اور کہا میاں لڑکے جوان ہوتے نظر نہیں آتے۔

۳۔ سید انشا کے اصرار پر جرات نے کون سا مصرع پڑھا؟

جواب۔ جرات نے کہا "اس زلف پہ پھبتی شب دیجور کی سوچھی"

۴۔ خواجہ صاحب اپنے اس شاگرد سے کیا کہا کرتے تھے جو اکثر بے روز گاری کی شکایت سے سفر کا ارادہ کرتا تھا؟

جواب۔ خواجہ حیدر علی آتش اپنی آزاد یزاجی سے کہا کرتے تھے کہ میاں کہاں جاؤ گے؟ دو گھڑی مل بیٹھنے کو غنیمت سمجھو اور جو خدا دیتا ہے اس پر صبر کرو۔

۵۔ صاحب عالم کی زبان سے اُس وقت کیا نکلا جب حکیم احسن اللہ خاں نے جلدی سے ان کے آنے اور جانے پر اظہار تعجب کیا؟

جواب۔ صاحب عالم کی زبان سے اُس وقت نکلا کہ اپنی خوشی سے آئے نہ اپنی خوشی چلے۔

(حصہ نظم) حمد

| معنی | الفاظ | معنی | الفاظ |
|------------------------|--------------|------------------------|---------|
| حکم نہ ماننے والا بندہ | بندہ نافرمان | قابو | قبضہ |
| پہلا | مقدم | خدا کی تعریف کرنے والا | حمد سرا |
| نا جاننے والا | نامحرم | جاننے والا | محرم |
| شاہی لباس | خلعت سلطانی | راز | بھید |
| معمولی لباس | کملی | اچھا لگتا | چٹا |
| چھایا ہوا | مھیٹا | فقیر | گدا |
| دنا | آفاق | صبح کا ٹھنڈا ہوا | صا |

سوالات کے جوابات

۱۔ کون سا بندہ حمد سرا ہے؟

جواب۔ بندۂ نافرمان حمد سرا ہے۔

۲۔ کس کا حق سب سے مقدم ہے؟

جواب۔ اللہ تعالیٰ کا حق سب سے مقدم ہے۔

۳۔ محرم اور نامحرم میں کیا فرق ہے؟

جواب۔ محرم اور نامحرم میں کوئی فرق نہیں۔

۴۔ اللہ کا گدا کس میں مگن رہتا ہے؟

جواب۔ اللہ کا گدا اپنی کملی میں مگن رہتا ہے۔

۵۔ بادِ صبا گھر گھر کیا لیے پھرتی ہے؟

جواب۔ بادِ صبا گھر گھر اللہ تعالیٰ کا پیغام لیے پھرتی ہے۔

اس حمد میں شاعر نے اللہ تعالیٰ کی کون کون سی صفات بیان کی ہیں؟

جواب۔ شاعر نے بیان کیا ہے کہ ہر دل پر اللہ تعالیٰ کا قبضہ ہے۔ لوگ اُسے جان نہ سکے: ہر شے میں اُس کا نور اور ہر طرف اس کی خوشبو ہے۔

تیسرے شعر میں شاعر نے محرم اور نامحرم کو کس لیے ایک جیسا قرار دیا ہے؟

جواب۔ شاعر نے تیسرے شعر میں محرم اور نامحرم کو ایک جیسا اس لیے قرار دیا ہے کہ کوئی اللہ کو مکمل طور پر پہچان نہ سکا۔

مرکزی خیال

اللہ تعالیٰ کی ذات ہر شے پر محیط ہے۔ کوئی بشر اس کی عظمت کا اعتراف کیے بغیر نہیں رہ سکتا۔ اے اللہ تیرا قبضہ ہر ایک دل پر ہے۔ اور انسان سے ممکن نہیں کہ تیری نعمتوں کا شکر ادا کر سکے، تیرے در کا گدا دنیاوی شان و شوکت کو اہمیت نہیں دیتا۔ رنج و غم میں لوگ تجھے ہی پکارتے ہیں۔ کائنات کے ذرے ذرے سے اللہ تعالیٰ کی ذات کے جلوے نظر آتے ہیں۔

نعت

| معنی | الفاظ | معنی | الفاظ |
|----------|-------|---------------------|--------|
| معنی | الفاظ | معنی | الفاظ |
| دروازے | در | ذکر | تذکرہ |
| ایک طرف | یک سو | تمنا | حسرت |
| عزت | حرمت | چاروں طرف | چار سو |
| دنیا | مکاں | ظاہر میں | ظہور |
| سرخ پھول | لالہ | جس کی کوئی حد نہ ہو | لامکاں |
| پھول | گل | بغیر کانٹے کے | بے خار |

سوالات کے جوابات

- ۱۔ صبا کہاں سے آتی ہے ؟
جواب۔ صبا مدینہ سے آتی ہے۔
- ۲۔ پھولوں میں کس کی خوشبو ہے؟
جواب۔ پھولوں میں مدینہ کی خوشبو ہے۔
- ۳۔ شاعر کے دل میں کیا حسرت اور آرزو ہے؟
جواب۔ شاعر کے دل میں حسرت اور آرزو ہے کہ وہ نبی پاک کے در پر زندگی کے دن گزاریں اور موت بھی وہیں آئے۔
- ۴۔ شاعر ناپنی حرمت اور آبرو کس بات میں خیال کرتا ہے؟
جواب۔ شاعر اپنی حرمت اور آبرو اس بات میں خیال کرتا ہے کہ وہ نبی پاک کی راہ میں فنا ہو جائے۔
- ۵۔ طوطی و بلبل کس کا ذکر کرتے ہیں ؟
جواب۔ طوطی و بلبل حضور پاک ﷺ کا ذکر کرتے ہیں۔
- ۶۔ اس نعت میں ردیف کیا ہے؟
جواب۔ اس نعت کی ردیف " ہے " ہے :-
- ۷۔ لالے کے بے داغ اور گل کے بے خار ہونے سے کیا مراد ہے؟
جواب۔ بے داغ لالے سے مراد حضور ﷺ کا کردار ہر طرح کے عیب سے پاک ہے جبکہ بے خار گل کا مطلب ہے کہ آپ ﷺ بے ضرر انسان تھے۔
- ۸۔ نظم نعت کے قافیے لکھیں۔
قافیے۔ تو ، بو ، گفتگو ، آرزو ، سو ، آبرو

مرکزی خیال

امیر مینائی حضور ﷺ سے محبت اور عقیدت کا اظہار کرتے ہوئے کہتے ہیں کہ کائنات ہر چیز آپ ﷺ کا تذکرہ کرتی ہے۔ آپ ﷺ حسنِ انسانیت ہیں۔ آپ ﷺ کی ذات دونوں جہانوں کے لیے باعثِ رحمت ہے۔ شاعر حضور ﷺ کے در پر جینے اور مرنے کی خواہش رکھتا ہے۔ اور اسی کو وہ اپنی عزت سمجھتا ہے۔ حضور ﷺ کا نور ہر طرف پھیلا ہوا ہے۔ آپ ﷺ کی ذات بے داغ ہے۔

| حصہ (غزل) | شاعر میر تقی میر | ہستی اپنی حباب کی سی ہے |
|-----------|------------------|-------------------------|
| الفاظ | معنی | الفاظ |
| ہستی | زندگی | حباب |
| سراب | دھوکہ | نازکی |
| پنکھڑی | پھول کی پتی | چشمِ دل |
| عالم | دنیا | اوقات |
| اصطراب | بے چینی | خانہ خراب |
| آتشِ غم | غم کی آگ | نیم باز |
| مستی | نشہ | |

سوالات کے جوابات

۱۔ ہنستا کو کس سے تشبیہ دی گئی ہے؟
۲۔ مہر زینباز آنکھوں کا مستہ کو کوا قرار دیا ہے؟

جواب۔ ہونٹوں کو گلاب کی پتھڑی سے تشبیہ دی ہے۔

جواب۔ میر نے نیم باز آنکھوں کی مستی کو شراب کی مستی قرار دیا ہے۔

۳۔ شاعر اضطراب کی حالت میں کیا کرتا ہے؟

جواب۔ شاعر اضطراب کی حالت میں بار بار اپنے محبوب کے در پر جاتا ہے۔

اُردو ب (کہانیاں - شیر کا گھر، گیدڑ کی مکاری، جس کا کام اسی کو سمجھے، قوم کی خاطر ایثار

ہیڈ ماسٹر صاحب کے نام ضروری کام، فیس معافی اور بیماری کی درخواست، ڈاکے کی شکایت کے لیے، سکول سرٹیفکیٹ کے حصول کے لیے، ہیلتھ آفیسر کے نام صفائی کی درخواست

خطوط - والد کے نام خط نتیجے کی اطلاع کے لیے، والدہ کے نام چھٹیوں میں گھر آنے کی اطلاع، بڑے بھائی کے نام خط خیریت

کی اطلاع، چچا کے نام خط مکالمہ مریض اور طبیب تا دو ہم جماعتوں کے درمیان

مذکر مونث - صفحہ نمبر ۱۳، ۲۷، ضرب الامثال ۱ تا ۳۰ مترادف الفاظ ۱ تا ۳۰، واحد جمع صفحہ نمبر ۲۹، ۳۰

(اُردو الف اور ب کا دیا گیا تمام کام زبانی یاد کریں)

(خدا آپ کا نگہبان)

اُردو ایف : حصہ نژ : سبق نمبر ۱ مرزا محمد سعید تا سبق نمبر ۸ ملح حصہ نظم نظم نمبر ۱ حمد تا نظم نمبر ۴ فاطمہ بنت عبد اللہ
حصہ غزل غزل نمبر ۱ مصیبت بھی راحت فزا تا غزل نمبر ۴ یہ فخر تو حاصل ہے
اُردو ب: قواعد؛ کلمے کی اقسام تا اسم صفت کی اقسام ، تفہیم عبارات ۱ تا ۷ اعراب ۱ تا ۲۰ مضامین زمزم تا چاندنی رات

سینٹ میریز گرزہائی سکول گوجرانوالہ

جماعت ہشتم پنک / گرین / بیلو

سلیبس اُردو الف

سبق نمبر ۲ - مرزا غالب کے عادات و خصائل

مختصر جواب دیں -

۱- مرزا غالب کیسے اخلاق کے مالک تھے؟

جواب- مرزا غالب نہایت وسیع اخلاق کے مالک تھے۔ یعنی مرزا غالب بہت خوش اخلاق تھے۔ وہ ہر شخص سے بہت کشادہ پیشانی سے ملتے تھے۔

۲- دوستوں کو دیکھ کر غالب کی کیا حالت ہوتی تھی؟

جواب- مرزا غالب دوستوں کو دیکھ کر باغ باغ ہو جاتے تھے اور ان کی خوشی میں خوش اور غم میں غمگین ہوتے تھے۔

۳- مرزا غالب کو کہاں کہاں سے خط آتے تھے؟

جواب- مرزا غالب کے نہ صرف دہلی بلکہ تمام ہندوستان میں بے شمار دوست تھے اور انہیں ہندوستان بھر سے خطوط آتے تھے۔

۴- اکثر لوگ غالب کو کس طرح کے خط بھیجتے تھے؟

جواب، اکثر لوگ مرزا غالب کو پیرنگ خط بھیجتے تھے مگر ان کو کبھی ناگوار نہ گزرتا تھا

۵- سالکوں کے ساتھ مرزا غالب کا سلوک کیسا تھا؟

جواب- اگرچہ مرزا غالب کی آمدنی قلیل تھی مگر حوصلہ فراخ تھا۔ سالک ان کے دروازے سے خالی ہاتھ بہت کم جاتا تھا۔

۶- دوستوں کے ساتھ مرزا غالب کا سلوک کیسا تھا؟

جواب- مرزا اپنے دوستوں کے ساتھ جو گردشِ روزگار سے بگڑ گئے تھے، نہایت شریفانہ طور سے سلوک کرتے تھے۔

۷- مرزا غالب کے مزاج کی خاص خوبی کیا تھی؟

جواب- مرزا غالب کے مزاج کی خاص خوبی ظرافت تھی۔

۸- مرزا غالب کو کونسا پھل پسند تھا؟

جواب- مرزا غالب کو آم بہت پسند تھا۔

۹- سبق مرزا غالب کے عادات و خصائل کس کتاب لیا گیا ہے؟

جواب- یہ سبق یادگار غالب سے لیا گیا ہے۔

۱۰- سبق مرزا غالب کے عادات و خصائل کے مصنف کون ہیں؟

جواب- اس سبق کے مصنف مولانا الطاف حسین حالی ہیں۔

سبق نمبر ۳- کاہلی

مختصر جواب دیں-

۱- دلی قوی کو بے کار چھوڑ دینے کا کیا مطلب ہے؟

جواب- دلی قوی کو بے کار چھوڑ دینے کا مطلب یہ ہے کہ انسان اپنی فکر، ذہانت اور عقل کو کام میں نہ لائے۔ اور زندگی میں کوئی

عملی و تعمیری کام سر انجام نہ دے جو سب سے بڑی کاہلی ہے۔

۲- انسان کب سخت کاہل اور وحشی ہو جاتا ہے؟

جواب- جب انسان اپنے دلی قوی کو بے کار چھوڑ دتا ہے تو وہ سخت کاہل اور وحشی ہوجاتا ہے۔

۳۔ کسی نہ کسی بات کی فکر و کوشش میں مصروف رہنا کیوں لازم ہے۔

جواب۔ کسی نہ کسی بات کی فکر و کوشش میں مصروف رہنا لازم ہے تاکہ ہم کو اپنی تمام ضروریات کے انجام کرنے کی فکر و مستعدی رہے۔

۴۔ قوم کی بہتری کیسے ممکن ہے؟

جواب۔ جب تک ہماری قوم سے کاہلی یعنی دل کو بے کار پڑا رکھنا نہ چھوٹے گا اس وقت تک ہم کو اپنی قوم کی بہتری کی توقع کچھ نہیں ہے۔

(ب) ہیڈ ماسٹر صاحب کے نام ضروری کام ، فیس معافی اور بیماری کی درخواست یاد کریں ۔

Class 8

BIOLOGY(2nd Term)

Chapter 3 “Biodiversity”

Short question answers

Q1:Define biodiversity.

Ans:The term biodiversity has been derived from ‘bio’ and ‘diversity’ .Diversity means variety within the species and among species.Biodiversity is a measure of the variety of organisms present in different ecosystems.

Q2:Write the importance of biodiversity.

Ans:1.Biodiversity provides food for humans.

2.A significant proportion of drugs are derived directly or indirectly from biological sources.

3.A wide range of industrial materials e.g building materials, fibres, dyes, resins, gums, adhesives, rubber and oil are derived directly from plants.

Q3:Differentiate between flora and fauna.

Ans:

| Flora | Fauna |
|---|--|
| 1.Variety of plants in a particular region is known as its flora. | 1.Variety of animals in a particular region is known as its fauna. |
| 2.Examples:Variety of plants in tropics and temperate regions. | 2.Examples:Variety of animals in polar regions |

Q4:What is the difference between taxonomy and systematics?

Ans:

| Taxonomy | Systematics |
|---|---|
| The branch of biology which deals with classification is called taxonomy. | The branch which deals with classification and also traces the evolutionary history of organisms is known as systematics. |

Q5:Describe the aims of classification.

Ans: The main aims of classification are:

1. To determine similarities and differences among organisms so that they can be studied easily.
2. To find the evolutionary relationship among organisms.

Q6: Define species.

Ans: A species is a group of organisms which can interbreed freely among them and produce fertile offspring, but are reproductively isolated from all other such groups in nature. Species is the basic unit of classification.

Q7: Write the classification of "Human"

| | |
|---------|---------------------|
| Taxa | Human |
| Kingdom | Animalia |
| Phylum | Chordata |
| Class | Mammalia |
| Order | Primates |
| Family | Hominidae |
| Genus | Homo |
| Species | <i>Homo sapiens</i> |

Q8: Write the classification of "Pea"

Ans:

| | |
|---------|---------------|
| Taxa | Pea |
| Kingdom | Plantae |
| Phylum | Magnoliophyta |
| Class | Magnoliopsida |
| Order | Fabales |
| Family | Fabaceae |
| Genus | Pisum |

| | |
|---------|----------------------|
| Species | <i>Pisum sativum</i> |
|---------|----------------------|

Q9: Mule is result of unnatural cross. Why?

Ans: Un-natural cross: Two different but closely related species can interbreed un-naturally but they can produce only infertile offspring through this un-natural mating. For example, a cross between a male donkey and a female horse produces an infertile offspring called mule.

Q10: What is the difference between the mode of nutrition of fungi and animals?

Ans:

| Nutrition of Fungi | Nutrition in Animals |
|--|--|
| 1. Fungi are multicellular heterotrophs and have absorptive mode of nutrition. 2. Mostly Fungi are decomposers. | 1. Animals are multicellular heterotrophs and have ingestive mode of nutrition. 2. Animals digest their food inside the body in specific parts for digestion. |

Q11: Write the names of two kingdoms in two kingdom classification.

Ans: There are two kingdoms in two kingdom classification:

1. Kingdom Animalia: The organisms that cannot synthesize their food and depend on autotrophs or other are heterotrophs and are included in kingdom animalia.

2. Kingdom Plantae: All organisms that can prepare food from simple inorganic materials like autotrophs are included in kingdom plantae.

Q12: What is the difference between autotrophs and heterotrophs?

Ans:

| Autotrophs | Heterotrophs |
|--|--|
| All those organisms which do not depend upon other organisms for getting their food are autotrophs. Example: Plants | All those organisms which depend upon other organisms for getting their food are heterotrophs. Example: Animals |

Q13: What is meant by three kingdom classification?

Ans: In 1866 Ernst Haeckel solved the first objection of two kingdom classification and proposed a third kingdom "protista" to accommodate euglena like organisms. He also included bacteria in kingdom protista. In this system fungi were still included in kingdom plantae.

Q14: Who introduced five kingdom classification system?

Ans: In 1967, Robert Whittaker introduced the five kingdom classification system. The five kingdoms included in this system are:

1. Monera 2. Protista 3. Fungi 4. Plantae 5. Animalia

Q15: What is meant by acellular?

Ans: The particles that do not have cellular organization are called acellular, like viruses are not considered as organisms and thus are not included in the five kingdom classification system.

Q16: Are viruses living or non living things?

Ans: Viruses are at the border line of living and non living.

| Non living characteristics | Living characteristics |
|---|---|
| 1. Virus is considered to be non living due to crystal formation. | 1. Viruses have DNA or RNA enveloped in a protein coat like living organism. |
| 2. Viruses are acellular i.e. they have no cellular organization. | 2. Viruses only reproduce within living cells where they also cause different diseases. |

Q17: What is the difference between prions and viroids?

Ans: Prions are composed of protein only and viroids are composed of circular RNA only.

Q18: Define Binomial nomenclature.

Ans: Binomial nomenclature is the method of giving scientific names to living organisms. As the word binomial suggests, the scientific name of a species consists of two names: the first is genus name and the second one is the name of species. Swedish biologist Carlous Linnaeus first introduced this system.

Q19: Write down the scientific name of onion and house crow.

Ans: **Onion:** *Allium cepa* **House crow:** *Corvus splendens*

Q20: What is meant by endangered species? Give examples.

Ans: A species is called endangered when it is at the risk of extinction in the near future from an ecosystem. Examples: Indus dolphin, Marco Polo sheep, Houbara bustard.

Q21: What are extinct species? Give examples.

Ans: A species that no longer lives in an ecosystem. When species of an ecosystem become extinct, the stability of the ecosystem is harmed. Examples: Lions, tiger, swamp deer are extinct species in Pakistan.

Q22: What is meant by soil erosion?

Ans: Heavy rainfall washes soil into rivers. Essential nutrients are washed out of soil; it is called soil erosion.

Q23: Define deforestation.

Ans: Deforestation means cutting down of trees for the conversion of a forest to a non-forest land.

Q24: What are the effects of overhunting on animal population?

Ans: Over-hunting has been a significant cause of the extinction of hundreds of species and the endangerment of many more species.

Q25: Write the name of National animal and national bird of Pakistan.

Ans: Markhor is the national animal of Pakistan and Chakor partridge is the national bird of Pakistan.

Q26: Write names of two projects for conservation of biodiversity in Pakistan.

Ans: 1. Himalayan Jungle Project. 2. Northern areas conservation project.

For Long answers learn these complete topics.

Q1. Write a note on two kingdom classification system.

Q2. Write a note on five kingdom classification system.

Q3. What are the drawbacks of three kingdom classification system.

Q4. Write a note on significance of binomial nomenclature.

Q5. Write a note on endangered species in Pakistan.

Chapter 4 “Cell and tissues”

Short question answers

Q1: Define microscopy and magnification.

Ans: Microscopy: Microscopy is the use of microscope.

Magnification: Magnification is the increase in the apparent size of an object and it is an important factor in microscopy.

Q2: What is the difference between magnification and resolution?

Ans

| Magnification | Resolution |
|--|---|
| Magnification is the increase in the apparent size of an object and it is an important factor in microscopy. | Resolution or resolving power is the minimum distance at which two objects can be seen as separate objects. |

Q3: Differentiate between transmission electron microscope and scanning electron microscope.

| Transmission electron microscope (TEM) | Scanning electron microscope (SEM) |
|---|---|
| In transmission electron microscope, electrons are transmitted through the specimen. It is used to study the internal cell structure. | Scanning electron microscope is used to study the structure of cell surface. In SEM, electrons are reflected from the metal-coated surface. It is used to study the structure of cell surfaces. |

Q4: Write down the main points of the cell theory.

Ans: Cell theory includes the following principles:

1. All organisms are composed of one or more cells.
2. Cells are the smallest living things, the basic unit of organization of all organisms.
3. Cells arise only by divisions in previously existing cells.

Q5: How did Robert Hooke introduce the cell?

Ans: Cells were first described by a British scientist, Robert Hooke in 1665. He used his self-made light microscope to examine a thin slice of cork. Hooke observed a honeycomb of tiny compartments. He called the compartments in cork as ‘Cellulae’. This term has come to us as a “cell”.

Q6: What are sub-cellular or acellular particles?

Ans: Virus, prions, and viroids are not composed of cells; rather they are sub-cellular or acellular particles. They do not run any metabolism inside them. They show some characteristics of living organisms, i.e., they can increase in number and can transmit their characters to next generations.

Q7: Define plasmodesmata.

Ans: There are pores in the cell walls of adjacent cells, through which their cytoplasm is connected. These pores are called plasmodesmata.

Q8:What is the difference between primary and secondary wall?

Ans:

| Primary wall | Secondary wall |
|--|--|
| The outer layer of the cell wall is known as primary wall and cellulose is the most common chemical in it. | Some plant cells,such as xylem cells,also have secondary walls on the inner side of primary wall.it is much thicker and contains lignin and other chemicals. |

Q9:Describe the composition of cell wall of fungi and prokaryotes.

Ans:Cell wall of fungi:Chitin is present in the cell wall of fungi.

Cell wall of prokaryotes:Prokaryotes have a cell wall composed of peptidoglycan that is a complex of amino acids and sugars.

Q10:Describe the functions of cell membrane.

Ans: 1.Cell membrane helps in the maintenance of cells internal composition.

2.Cell membrane also senses chemical messages and can identify other cells.

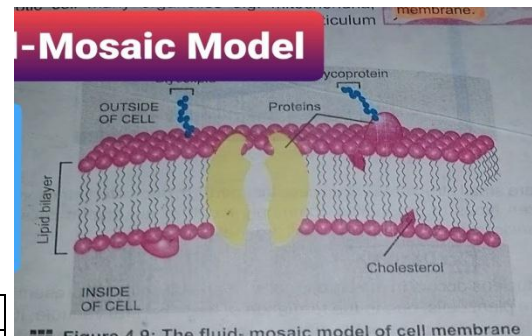
Q11.What is Fluid Mosaic Model?

Ans:According to fluid mosaic model,there is a lipid bilayer in which the proteion molecules are embedded.The lipid bilayer gives fluidity and elasticity to membrane.Small amounts of carbohydrates are also present in the cell membrane.These are joined with the proteins or lipids of membrane.In eukaryotic cells,cholesterol is also present in lipid bilayer.

Q12What is the difference between cell membrane and cell wall?

Ans:

| Cell Membrane | Cell Wall |
|--|---|
| 1.Cell membrane is a thin and elastic membrane covering the cytoplasm. | 1.Cell wall is a non living and strong component of cell. |
| 2.Cell membrane is made up of lipids and proteins. | 2.Cellulose is the most common chemical in the cell wall of plants which cover cell membrane. |



Q13:What is semi permeable membrane?

Ans:Plasma membrane is called semi-permeable membrane as it allows only selective molecules to pass out of the cell and keep most of the molecules inside the cell.in this way it helps to maintain the chemical structure of the cell.

Q14:Describe the function of cytoplasm.

Ans:1.The cytoplasm of the cell provides space for the proper functioning of the organelles.

2.It acts as the site for various metabolic reactions,for example,glycolysis.

Q15:What is the difference between microtublues and microfilaments?

Ans:

| Microtubules | Microfilaments |
|--|--|
| 1.Microtubules are made up of tubulin protein. | 1.Microfialments are amde up of actin protein. |
| 2.Microtubules maintain the shape of cell. | 2.Microfilaments are thinner than microtubules. |
| 3.Microtubules are also major part of structure of cilia and flagella. | 3.Microfialments help cells to change its shape. |

Q16:Where are chromosomes found?What is their composition?

Ans:Chromosomes are found in nucleoplasm.Chromosomes are composed of deoxy ribonucleic acid(DNA)and proteins.

Q17:Write the function of nucleus.

Ans:Nucleus contains hereditary material which not only controls all activities of a cell but is also responsible for the transmission of characters to next generation.

Q18:What is nuclear envelope?

Ans:Nucleus is surrounded by a double membrane that is called nuclear envelope.Nuclear envelope contains many tiny pores which makes it a semi-permeable membrane.Nuclear envelope surrounds a granular fluid called nucleoplasm.

Q19:What is the function of ribosomes?

Ans:Ribosomes are the sites of protein synthesis.Protein synthesis is extremely important to cells,and so large numbers of ribosomes are found throughout cells.When a ribosome is not working, it disassembles into two smaller units.

Q20:Write the function of mitochondria.Draw the diagram also.

Ans:Mitochondria are the sites of aerobic respiration and are the major energy production centres.

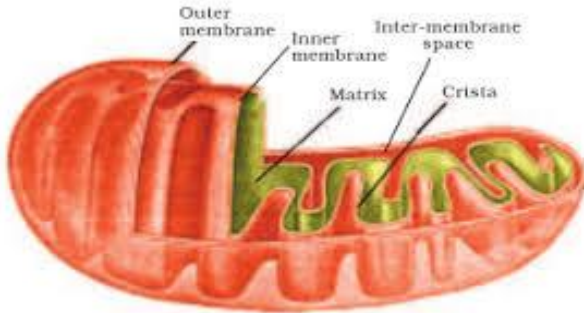


Diagram of Mitochondria

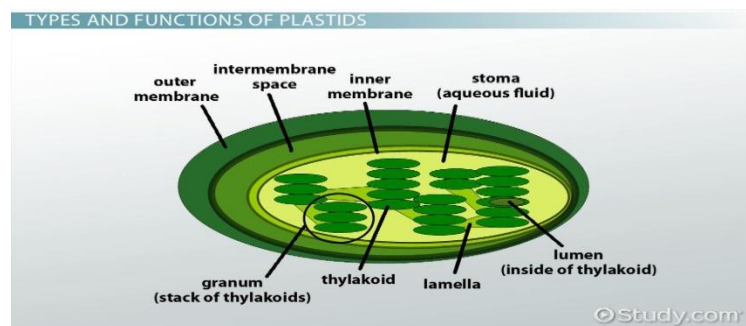
Q21:What are plastids?name its kinds.

Ans:**Plastids:**Plastids are membrane bound organelles that can only occur in plants and photosynthetic algae.**Types of plastids:**There are three types of palstids.1.Choloroplasts. 2.Chromoplasts 3.Leucoplasts

Q22:What is the difference between thylakoids and stroma?

Ans:

| Thylakoids | Stroma |
|--|--|
| Chloroplast is also bound by a double membrane.The outer membrane is smooth while the inner membrane gives rise to sacs called thylakoids. | The stack of thylakoids is called granum.grana float in the inner fluid of chloroplast i.e.stroma. |



Q23: Write the difference between rough endoplasmic reticulum and smooth endoplasmic reticulum?

| Rough Endoplasmic Reticulum(RER) | Smooth Endoplasmic Reticulum(SER) |
|---|---|
| Rough Endoplasmic Reticulum(RER) is so named because of its rough appearance due to numerous ribosomes attached to it. Due to the presence of ribosomes RER serves a function in protein synthesis. | Smooth Endoplasmic Reticulum(SER) lacks ribosomes and is involved in lipid metabolism and in the transport of materials from one cell to other and looked smooth so it is called SER. |

Q24: Write the function of golgi apparatus.

Ans: Golgi apparatus was discovered by Italian physician Camilio Golgi. It is found in both plants and animal cells. **Function:** It modifies molecules coming from rough endoplasmic reticulum and packs them into small membrane bound sacs called Golgi Vesicles and transport them to various locations in cells or its exterior, in the form of secretions.

Q25: What are lysosomes?

Ans: Lysosomes are single membrane bound organelles which contain strong digestive enzymes and work for the breakdown of food and waste materials within the cells. During its function a lysosome fuses with the vacuole that contains the targeted material. (draw diagram from book)

Q26: Differentiate between centrioles and centrosomes.

Ans:

| Centrioles | Centrosome |
|---|--|
| Animals and many unicellular organisms have a hollow and cylindrical organelles known as centrioles. Each centriole is made of nine triplets of microtubules (made of tubulin protein). | Animals cells have two centrioles located near the exterior surface of nucleus. The two centrioles are collectively called a centrosome. Their function is to help in the formation of spindle fibres during cell division. In some cells, centrioles are involved in the formation of cilia and flagella. |

Q27: Describe the function of vacuoles in a cell.

Ans: 1. Vacuole in plant cell provides turgidity. 2. Many cells take materials from outside in the form of food vacuole.

Q28: What is the difference between diffusion and facilitated diffusion?

| Diffusion | Facilitated diffusion |
|---|---|
| Diffusion is the movement of molecules from an area of higher concentration to the area of lower concentration i.e. along the concentration gradient. | When a transport protein moves a substance from higher to lower concentration, the process is called facilitated diffusion. |

Q29: What is the difference between active transport and passive transport?

Ans:

| Active transport | Passive transport |
|---|--|
| It is the movement of molecules from an area of lower concentration to the higher concentration. This movement against the concentration gradient requires energy in the form of ATP. | It is the movement of molecules from an area of higher concentration to an area of lower concentration is called diffusion. As cell consumes no energy in diffusion of molecules across the membrane, hence diffusion is also termed as passive transport. |

Q30: What is the difference between osmosis and reverse osmosis?

Ans:

| Osmosis | Reverse osmosis |
|---|--|
| Osmosis is the movement of water across a semi permeable membrane from a solution of lesser solute concentration to a solution of higher solute concentration | In advanced water treatment technologies membrane based filtration systems are used. In this process, semi permeable membranes separate salts from water called reverse osmosis. |

Q31: Define plasmolysis.

Ans: Plasmolysis is the shrinkage of cytoplasm due to the exosmosis of water.

Q32: What is turgor pressure?

Ans: When vacuole increases in size, cytoplasm presses firmly against the interior of cell wall, which expands a little. Due to strong cell wall, plant cell does not rupture but instead becomes rigid. In this condition, the outward pressure on cell wall exerted by internal water is known as turgor pressure and the phenomenon is turgor.

Q33: What is sodium potassium pump?

Ans: In this process, carrier proteins of cell membrane use energy to move the molecules against the concentration gradient. For example, the membranes of nerve cells have carrier proteins in the form of sodium potassium pump. (draw diagram from book)

Q34: What is the difference between endocytosis and exocytosis?

Ans:

| Endocytosis | Exocytosis |
|---|--|
| It is the process of cellular ingestion of bulky materials by the infolding of cell membrane. | It is the process through which bulky materials are exported from the cells. |

Q35: What is the difference between skeletal muscles and smooth muscles?

Ans:

| Skeletal muscles | Smooth muscles |
|---|---|
| Skeletal muscles or striated muscles are attached to bones. Their cells are striated (striped) and contain many nuclei. They are responsible for the movement of bones. | Smooth muscles are found in the walls of the alimentary canal, urinary bladder, blood vessels etc. They contain smooth (non-striated) cells, each with a single nucleus. They are responsible for the movement of substances. |

Q36: What is the difference between simple tissues and compound tissues?

Ans:

| Simple Tissues | Compound Tissues |
|--|---|
| 1. Simple tissues are tissues present in plants and are composed of only one type of cells. 2. Simple tissues are of further two types: a) Meristematic tissues b) Permanent tissues | 1. Compound tissues are tissues present in plants and are composed of more than one type of cells. 2. Complex tissues are of two typical examples: a) Xylem tissues b) Phloem tissues |

Q37: What is intercalary meristem?

Ans: Intercalary meristem is in the form of small patches among mature tissues. These are common in grasses and help in the regeneration of parts removed by herbivores.

Q38: What are sclerenchyma tissues?

Ans: Sclerenchyma tissues are composed of cells with rigid secondary cell walls. Their cell walls are hardened with lignin, which is the main chemical component of wood. Mature sclerenchyma cells cannot elongate and most of them are dead.

Q39: Define permanent tissues. Write its types.

Ans: Permanent tissues originate from meristematic tissue. The cells of these tissues do not have the ability to divide. There are the following types: 1. Epidermal tissues 2. Ground tissues 3. Support tissues

Q40: Write the functions of xylem tissues and phloem tissues.

Ans:

| Xylem Tissues | Phloem Tissues |
|--|---|
| 1.Xylem tissues are responsible for the transport of water and dissolved substances from roots to the aerial parts. 2.Two types of cells are found in xylem tissues:a)vessel elements b)Tracheids | Phloem tissue is responsible for the conduction of dissolved organic matter (food) between different parts of the plant body. 2.Two types of cells are found in plant tissues:a)Sieve tube cells b)Companion cells |

Long questions:

Q1.What are the types of microscopes?

Q2.write a note on nucleus with diagram.

Q3.What are plastids ?Write its types.

Q4.What is the difference between prokaryotic and eukaryotic cell?

Q5.write a note on epithelial tissues and its types with diagram.

Q6.What are meristematic tissues?write its types.

Note:For long answers learn the complete topics (do not write long answers on copy)learn complete chapter .

Chapter 6 “Enzymes”

Short question answers

Q1.Define metabolism.

Ans:Metabolism is a set of biochemical reactions that occur in living organisms in order to maintain life.

Q2:What is the difference between anabolism and catabolism?

Ans:

| Anabolism | Catabolism |
|---|--|
| Anabolism include all those biochemical reaction in which larger molecules are formed from smaller molecules. Energy is utilized in anabolism. | Catabolism include all those biochemical reactions in which larger molecules are broken down. Energy is released in catabolism. |

Q3.What is meant by enzymes or biocatalyst.

Ans:enzymes are proteins that catalyze(speed up) biochemical reactions and are not changed during the reaction.Enzymes are also called biocatalyst.

Q4.Define substrate and product.

Ans:The molecules at which enzymes act are called substrate.Enzymes converts the substrate into different molecules which are called products.

Q5.Define activation energy.

Ans:It is defined as minimum amount of energy required to start a reaction.Enzymes lower the activation energy in several ways.They may alter the shape of substrate and reduce the requirement of energy for this change.

Q6:Write any two characteristics of enzymes.

Ans:1.Almost all enzymes are proteins i.e. they are made up of amino acids.

2:Most enzyme reaction rates are millions of times faster than those of comparable uncatalyzed reactions.As with all catalysts,enzymes are not consumed by the reactions they catalyze.

Q7:Differentiate between extra cellular and intracellular enzymes with examples.

Ans:Enzymes can be categorized on the basis of the site where they work i.e. they may be intracellular enzymes(e.g enzymes of glycolysis working in cytoplasm) or may be extracellular enzymes(e.g pepsin enzyme working in the stomach cavity).

Q8: Define active site.

Ans: During catalysis, only a small portion of enzyme molecule is directly involved in the chemical reaction and this catalytic region is known as active site.

Q9: What is the difference between prosthetic group and co-enzyme?

Ans:

| Prosthetic group | Co-enzyme |
|--|---|
| If organic co factors are tightly bound to enzyme, they are called prosthetic group. | If organic co factors are loosely attached with enzymes, they are called coenzymes. For example, Riboflavin, thiamine, folic acid. |

Q10: Define Cofactors.

Ans: Some enzymes do not need any additional component to work. However, others require non-protein molecules or ions called co factors.

For example, flavin and heme.

Q11: Write any two uses of enzymes.

Ans: 1: Food industry: Enzymes that break starch into simple sugars are used in the production of white bread, buns etc.

2: Paper industry: Enzymes break starch to lower its viscosity that aids in making paper.

Q12: Give the use of biological detergents.

Ans: Protease enzyme are used for the removal of protein stain from clothes. Amylase enzymes are used in dish washing to remove resistant starch residues.

Q13: Define optimum temperature.

Ans: Enzymes work at its maximum rate at a specific temperature. The optimum temperature of human enzymes is 37°C.

Q14: What is denaturation of enzyme?

Ans: Maximum working speed of human enzyme is at 37°C. When temperature raises to 37°C, heat adds in the activation energy and also provides kinetic energy for the reaction. So reactions are accelerated. But when temperature is raised well above the optimum temperature, heat energy increases the vibrations of enzyme and the globular structure of enzyme is lost. It slows the activity of enzyme and it may be blocked completely due to denaturation of enzyme.

Q15: What is optimum pH?

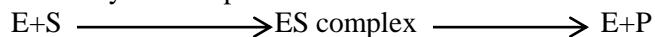
Ans: Every enzyme work at their maximum rate at a specific pH called as the optimum pH for that enzyme e.g pepsin work at pH of 2.

Q16: In which medium pepsin and trypsin enzymes work?

Ans: Pepsin enzyme works in acidic medium. Trypsin enzyme works in alkaline medium.

Q17: Write and explain the mechanism of enzyme action.

Ans: When enzyme attaches with the substrate a temporary enzyme substrate (ES) complex is formed. Enzymes catalyzes the reaction and substrate is transformed into product. After it, the ES complex breaks and enzyme and products are released.



Q18: Who put forward the Lock and key model?

Ans: In order to explain the mechanism of enzyme action a German chemist Emil Fischer, in 1984, proposed lock and key model.

Q19: Who suggested induced fit model?

Ans: In 1958, an American biologist Daniel Koshland suggested a modification to lock and key model and proposed induced-fit model.

Q20: What is meant by specification of enzyme?

Ans: Enzymes are also substrate specific. The enzyme protease (which breaks peptide bonds in proteins) will not work on starch (which is broken down by an enzyme amylase). Lipase enzyme acts only on lipids and digests them into fatty acids and glycerol.

Long question answers:

- Q1. Write a note on uses of enzymes.
Q2. Write a note on characteristics of enzymes.
Q3. What are the factors that affect enzyme activity?
Q4. Write a note on lock and key model and induced fit model.

Note: learn complete chapter 4 and 6 for short answers, long answers and MCQ's.

St. Mary's Convent Girls High school

Subject: Chemistry.

Class: 8P/G/B

Chapter 3: "Periodic table and periodicity of properties"

Short Questions.

1. Why noble gases are not reactive?

A: All the noble gases have completely filled outermost shell. It is because of their complete configuration that the

noble gases do not show any chemical reactivity.

2. Why Cesium (at.no.55) requires little energy to release its one electron present in the outermost shell?

A: Cesium (at.no.55) requires little energy to release its one electron present in the outermost shell because less

energy is required to remove the electron of less attraction in of nucleus the outermost shell of any isolated gaseous

atom.

3. How does periodicity of properties dependent upon number of protons in an atom?

A: The number of protons in the nucleus of an atom is called atomic number. The significance of atomic number in the

arrangement of elements in the modern periodic table lies in fact that as electronic configuration is based upon

atomic number, so the arrangement of elements according to increasing atomic number shows the periodicity

(repetition of properties after regular intervals) in the electronic configuration of the elements that lead to

periodicity in their properties.

The periodicity of properties depends upon the number of protons in an atom. They vary when we move from left

to right across the period and top to bottom in any group.

4. Why shielding effect of electrons makes cation formation easy?

A: The greater the shielding effect of electrons the lesser will be the valence electron nucleus attraction. As the force

of attraction between the nucleus and the outer electron decreases, the removal of electrons becomes more easy or

with less energy. Hence shielding effect of electrons make cation formation easy.

5. What is the difference between Mendeleev's periodic law and modern periodic law?

A: Mendeleev's periodic law: This law states that "The properties of elements are the periodic functions of their

atomic masses.

Modern periodic law: According to modern periodic law "The properties of elements are the periodic functions

of their atomic numbers.

6. What do you mean by groups and periods in a periodic table?

A: Groups: The vertical columns in the periodic table are called groups. The groups are numbered from 1 to 18

starting from the left.

Periods: The horizontal rows in the periodic table are called periods. There are seven periods in the periodic table.

7. Why and how are elements arranged in 4th period?

A: This period corresponds to $n = 4$. It has 4 shells as $n = 4$. They accommodate their electrons in 4th shells and then

3th is filled. This period contains 18 elements and is called a long period. The elements are arranged from K_{19} to K_{36} .

8. Why the size of atom does not decrease regularly in a period?

A: The atomic size does not decrease regularly in a period due to poor shielding effect. This effect is quite remarkable

in the transition elements of longer periods in which 'd' and 'f' subshells are involved. The atomic size of the

element first reduces or contracts and then there is an increase in it on moving from left to right in a period.

9. Give the trend of ionization energy in a period.

A: If we move from left to right in a period, the value of ionization energy increases. It is because the size of atom

reduces and the valence electrons are held strongly by the electrostatic force of nucleus. Therefore elements on

left side of the periodic table have low ionization energies as compared to those on right side of the periodic table.

10. What is meant by ionization energy?

A: Ionization energy: The amount of energy required to remove the most loosely bound electron from an isolated

gaseous atom in its ground state is called ionization energy.

11. What is meant by atomic radius?

A: Atomic radius: Half of the distance between the nuclei of the two bonded atoms is referred to as atomic radius.

OR

The atomic radius is the distance from the center of the nucleus to the outermost shell of electrons in the atom of

any element.

12. Define electron affinity.

A: The minimum amount of energy which is released or absorbed when an electron is added to an isolated gaseous

atom in its outermost shell to produce an anion is called electron affinity.

OR

The amount of energy released when an electron is added in the outermost shell of an isolated gaseous atom.

13. Define electronegativity.

A: The ability of an atom to attract the shared pair of electrons towards itself in a molecule is called electronegativity.

14. Define the transition elements.

A: The d-block elements are called the transition elements. These elements occupy groups and lie in between the s and

p-block elements. There are four series of d-block transition elements depending upon the energy level of the

subshell which is in the process of filling in their outermost shell.

15. Why are the elements called s and p block elements?

A: Elements in s and p blocks have valence electrons in their s and p subshells. Therefore they are called s and p block

elements.

16. What is meant by alchemy?

A: For thousands of years alchemy remained the field of interest for the scientists. They worked with two main

objectives: change common metal into gold and second find cure to diseases and give eternal life to people. They

believed all kinds of matter were same combination of four basic elements. The way of making gold from silver or

lead was never discovered. However many methods and techniques invented by alchemists are still used in

Chemistry.

17. What is modern periodic table?

A: The modern periodic table is based upon the arrangement of elements according to increasing atomic number.

18. From which elements series of Lanthanides and Actinides are started?

A: The series of Lanthanides start from the Lanthanum (La_{57}) element, and the series of Actinides start from the

Actinium (Ac_{89}) element.

19. Define shielding effect.

A: The decrease in the attractive force entered by the nucleus on the valance shell electrons due due to the presence of

the electrons lying between the nucleus and the valance shell is called shielding effect.

MCQ's answers:

1. (b) increase from top to bottom in a group 2. (d) electron affinity

3. (b) atomic mass. 4. (b) atomic number

5. (c) long periods. 6. (d) Iodine

7. (a) atomic radius. 8. (b) all metals

9. (c) it decreases in a period. 10. (c) it decreases in a period

Long Questions.

1. What is atomic radius? Also state atomic size. Give the atomic radii trend in periodic table?

A: pg# 51,52 (Half of the distance between.....from left to right in 4th period)

2. Define shielding effect and its trend along with the period and group.

A: pg#52

3. Discuss the important features of modern periodic table.

A: pg# 47 (salient features of long form of periodic table.complete points)

4. Discuss in detail the periods and groups in a periodic table?

A: pg#49,50

5. Differentiate between electron affinity and electro negativity. Also describe their trends along with periods and

groups?

A: pg# 53,54,55

6. Write a detail note on ionization energy.

A: pg#53

Chapter 4: "Structure of Molecules"

Short Questions:

1. Why do atoms react?

A: Every atom tries to attain minimum energy and maximum stability. Atoms achieve stability by attaining electronic

configuration of inert/noble gasses i.e $ns\ np$. Having 2 or 8 electrons in their valance shell. So atoms can react with

each other to get stability.

2. Why is the bond between an electropositive and an electronegative atom ionic in nature?

A: An electropositive atom forms a positive ion by losing electron. An electronegative atom forms a negative ion by

gaining electron. These two oppositely charged ions are held together by the electrostatic forces of attraction to form

an ionic bond.

3. Ionic compounds forms solids Justify.

A: In ionic compounds, oppositely charged ions are held together by the strong electrostatic forces. Their ions do not

have the freedom of movement. They occupy fixed positions. Hence, ionic compounds form crystalline solids.

4. More electronegative elements can form bonds between themselves Justify.

A: More electronegative elements have equal or nearly equal electron affinities and electronegativity.

They have high

ionization energies, high nuclear charges and small atomic sizes of atoms. They do not allow the transfer of

electrons from one atom to another. The combining atoms of more electronegative elements favour the formation of

covalent bond by sharing electrons. In this way, they get stability by releasing energy through the process of sharing

of electrons.

5. Metals are good conductors of electricity. Why?

A: Metals are good conductors of heat and electricity in solid and liquid state due to mobile electrons. So, free mobile

electrons in metal are responsible for the flow of electricity in metals.

6. Ionic compounds conduct electricity in solution or molten form. Why?

A: Ionic compounds or salts conduct electricity in solution or molten form. In both cases ions become free or mobile.

So, they conduct electricity due to the presence of free ions in them.

7. What type of covalent bond is formed in nitrogen molecule?

A: A nonpolar triple covalent bond is formed in nitrogen molecule. Equation on pg# 63.

8. Differentiate between lone pair and bond pair of electrons.

A: Lone pair: A pair of electrons in the valence shell of atom which is not shared with any other atom is called a lone

pair of electrons. Lone pair of electrons belongs to a single atom.

Bond pair; A pair of electrons shared between two atoms is called a bond pair of electrons. Bond pair of electrons

belongs to two atoms in a molecule.

9. Describe at least two necessary conditions for the formation of a covalent bond.

A: Necessary conditions for the formation of a covalent bond are:

1. The electronegativity of elements must be high.

2. The ionization energy of elements must be high.

10. Why HCl has dipole-dipole forces of attraction?

A: Due to unequal sharing of electrons between H and Cl atoms, the Cl atoms become partially negatively charged

whereas H atom becomes partially positively charged.

When partial positive and partial negative charges exist at different positions in a molecule, the adjacent molecules

will arrange themselves in such a way that negative portion of one molecule comes near to positive portion of

other molecules. It results in a net forces of attraction between oppositely charged portions of two adjacent molec-

ules. These attractive forces are called dipole-dipole forces of attraction.

11. What is triple covalent bond, explain with an example?

A: "A covalent bond formed by sharing of three pair of electrons between two atoms is called a triple covalent bond."

It is represented by three small line drawn between the two atoms. See example on pg# 63.

12. What is the difference between polar and non-polar covalent binds, explain with one example of each?

A: Polar covalent bond: A covalent bond between two atoms in which the shared pair of electrons is attracted unequal-

ly by both the atoms is called a polar covalent bond. It is the covalent bond between two different atoms (e.g HCl

pg # 64)

Non-polar covalent bond: A covalent bond between two atoms in which the shared pair of electrons is attracted

equally by both the atoms is called a non-polar covalent bond (e.g H₂ pg#64)

13. Why a covalent bond becomes polar?

A: A covalent bond becomes polar due to unequal attracting ability of the two bonded atoms. The atom having higher

electronegativity has greater electron attracting ability than the atom having lower electronegativity. Thus one end

of the covalent bond has a partial positive charge while other end has a partial negative charge. Due to this

covalent bond becomes polar.

14. What is relationship between electronegativity and polarity?

A: The polarity of the covalent bond depends upon the electronegativity difference between the bonded atoms. Greater

the electronegativity difference more polar is the bond.

15. Why does ice float on water?

A: Ice float on water. This is because ice has lower density than water. The density of ice at 0°C (0.917g cm⁻³) is less

than that of liquid water at 0°C (1.00g cm⁻³). In the liquid state water molecules move randomly. However when

water freezes, the molecules arranged themselves in an ordered form, that gives them open structure. So, ice

occupies more volume than the same mass of water. As a result, the density of ice is less than that of water. Hence

ice floats on water.

16. Give the characteristic properties of ionic compounds.

A: pg# 69

17. What characteristic properties do the covalent compounds have?

A: pg# 69

18. Define dielectric constant.

A: The extent to which the force of attraction between two oppositely charged ions is decreased due to a solvent is

called dielectric constant.

19. Define Vander wall forces.

A: All intermolecular forces collectively called Vander wall's forces. They are electrical in nature. They result from

the attraction of opposite charges, which may be or temporary or permanent.

20. What do you mean by malleability?

A: The ability of metals to form sheets is called malleability.

21. Define metallic bond.

A: The metallic bond is formed between metal atoms (positively charged ions) due to mobile or free electrons.

22. Define intermolecular forces.

A: The forces that hold atoms in a compound called is chemical bond. In addition to these strong bonding forces

weak forces also exist in between molecules, called intermolecular forces. Intermolecular forces collectively called

Vander wall's forces.

MCQ's answers:

1. (c) they want to attain stability 2. (c) gaining two electrons

3. (b) 8. 4. (d) attaining of 8 electrons

5. (b) ionic bonding. 6. (b) ionic

7. (a) covalent. 8. (b) two electrons

9. (b) KBr. 10.(c) water is denser than ice

11. (c) sharing of electrons. 12.(a) two

13. (b) six. 14.(d) O₂ and C₂H₂

15. (a) C₆H₆. 16.(b) BF₃

17. (d) H₂O and HCl 18.(c) intermolecular force

Long Questions:

1. What is an ionic bond? Discuss the formation of ionic bond between Sodium and Chlorine atoms?

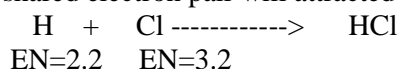
A: pg#60,61

2. How can you justify that bond strength in polar covalent compounds is comparable to that of ionic compounds?

A: If covalent bond is formed between two different types of atoms, then the bond pair of the electrons will not be

attracted equally by bonded atoms. When there is electro negativity difference between two covalently bonded

atom shared electron pair will attracted toward more electronegative atom. As in formation of HCl



Due to difference in electronegativity partial positive charge create on H and partial negative charge on chlorine.

Due to unequal charges difference the strength of polar covalent companied is near the ionic compound.

3. What type of covalent bond present between Hydrogen, Oxygen and Nitrogen explain their bonding with dot

and cross model.

A: pg# 62,63

4. How covalent bond develop Ionic character? Explain.

A: In covalent compounds ionic properties are produced when covalent bond is formed between two different atoms.

Due to difference of electronegativity values polarity produced. Because it creates partial positive charge on one

atom and partial negative charge on other atom. For example in formation of HCl which is polar covalent

compound and has also ionic characters.

5. Explain the types of covalent bonds with at least one example of each type.

A: pg#62

6. How is a coordinate covalent bond formed explain with example?

A: pg#63

7. What is metallic bond? Explain metallic bond with the help of diagram.

A: pg# 65

8. Define hydrogen bonding. Explain that how these forces affect the physical properties of compound.

A:pg#67

9. What are intermolecular forces? Compare these forces with chemical bond forces with reference to HCl molecule?

A: pg# 66

10. What is a chemical bond? Why do atoms form a chemical bond?

A: The forces responsible for binding the atoms together in a molecule are called chemical forces and chemical bond.

It is a universal rule that every thing in this world tend to become more stable. Atoms achieve stability by attaining

electronic configuration of inert gas like (He, Ne, Ar etc) i.e ns^2, np^6 . That is why atom form chemical bond with

each other to stable itself.

11. What is octet rule? Why do atoms always struggle to attain nearest noble gasses electronic configuration?

A: Attaining two electrons in valance shell is called duplet rule and attaining eight electrons in valance shell is called

octet rule.

It is universal rule that world tend to become more stable atoms achieve stability by attaining electronic configuration of inert gasses i.e. ns,np. Having 2 or 8 electrons in valance shell is sign of stability that is why all

atoms always struggle to attain noble gasses electronic configuration.

Physics

2nd Term

Class 8th B/G/P

Chapter 3'4

chap#3

Dynamics

Exercise Short Questions

Q.3.2 Define inertia.

Ans. Inertia: "Inertia of a body is its property due to which it resists any change in its state of rest motion" Inertia depends upon the mass of a body. Greater is the mass of a body greater is its inertia.

(i) Define momentum.

Ans. Momentum: "Momentum of a body is the quantity of motion it possess due to its mass and velocity. "Its vector quantity. Its SI unit is kgms⁻¹" or Ns.

Its formula is:

Momentum = mass×velocity

$P = mv$

(ii) Define force.

Ans. Force: "An agency which moves or tends to move, stop or tends to stop the motion of a body is called force." Force is a vector quantity. Its SI unit is newton (N)

Formula is: $F = ma$

(iv) Define force of friction.

Ans. Force: "The force that opposes the motion of moving objects is called friction." tis vector quantity.

Its SI unit is newton (N).

(v) Define centripetal force.

Ans. Centripetal Force: "Centripetal force is a force that keeps a body to move in a Circle. its direction is towards the centre of a circle. It is represented by F
its formula is:
 $F_c = mv^2/r$

Q.3.3 Differentiate between mass and weight

Ans.

Weight

- weight of a body Is the force of gravity acting on it.
- It is a vector quantity
- It is represented by 'w'
- its formula is.
- $W = mg$
- its SI unit is newton (N)

Mass

- Mass of a body Is the quantity matter possessed by the body.
- it Is a scalar quantity.
- It is represented by m
- Its formula is
- $m = w/g$
- Its SI unit is kilogramme (Kg)
- It does not change with the change in the position on the Earth' s Surface.

Q.3.5 Why it is dangerous to travel on the roof of a bus?

Ans. Travelling on the roof of a bus is very dangerous because when a bus stops at once, due to inertia the passengers continue their motion in straight line. Thus, they fall in the forward direction.

Q.3.6 Why does a passenger move outward when a bus takes a turn?

Ans. When a bus takes a sharp turn, passengers fall in the outward direction. Due to inertia the passengers continue their motion in a straight line and fall outwards.

Q.3.7 How can you relate a force with the change of momentum of a body?

Ans. Long question (Page # 67 topic force and momentum)

Q.3.8 What will be the tension in a rope that is pulled from its ends by two opposite forces 100N each?

Ans. Tension in string will be equal to 100N.

Q.3.9 Action and reaction are always equal and opposite. Then how does a body moves?

Ans. Action and reaction act on different bodies. They do not balance each other. Action is on the one body and reaction is on the other body. As action and reaction are equal in magnitude but opposite in direction, thus a body moves.

Q.3.10 A horse pushes the cart. If the action and reaction are equal and opposite. Then how does a body moves?

Ans. A horse apply action force by feet on the road, the reaction is given by roads on horse, due to which horse moves. The cart which is tied with the horse also moves.

Q.3.11 What is the law of conservation of momentum?

Ans. Law of conservation of momentum states:

The momentum of an isolated system of two or more than two interacting bodies remains constant.

An isolated system Is group of interacting bodies on which no external force is acting.

Q.3.12 Why is the law of conservation of momentum important?

Ans. By using law of conservation of momentum it is possible to calculate force velocity and acceleration of a body. Most of elementary particles are discovered by the use of this law.

Q.3.13 When a gun is fired, it recoils, Why?

Ans. Before firing the gun, total momentum of the system (gun and bullet) is zero. SoSo after firing the gun total momentum is must be zero. That is why the gun recoils to conserve the momentum of the system.

Q.3.14 Describe two situations in which force of friction is needed.

Ans. Friction plays very important role in our daily lives.

Friction is needed to hold a pen and to write a word on your notebook.

Friction is needed to walk on the ground. We cannot run on slippery ground.

Q.3.15 How does oiling the moving parts of a machine lowers friction?

Ans. Oil is a lubricant. Its use makes the surfaces a little plane and smooth. Thus, oiling the moving parts of a machine lowers the friction.

Q.3.16 Describe ways to reduce friction.

- Ans. Friction can be reduced by following methods
- making the sliding surfaces smooth.
- Making the fast moving objects a streamline shape (fish shape) such as
- cars, aero planes etc.
- Lubricating the sliding surfaces.
- Using ball bearing or roller bearing.

Q.3.17 Why rolling friction is less than sliding friction?

Ans. Sliding surfaces moves over each other after rupturing the cold welds, thus producing greater friction. While the wheels roll without rupturing the cold welds producing lesser friction. That is why the rolling friction is less than sliding friction.

Q.3.18 What do you know about tension in a string?

Ans. " The force which is exerted by the string on the body is called tension in the string." It is a reaction force. It is denoted by T

ii. What do you know about the limiting force of friction?

Ans. "The maximum value of friction is known as limiting force of friction." Its denoted by F, .Its formula is:

iii. What do you know about braking force?

Ans. The braking is a force between brakes bushes and wheels of vehicles. It helps to stop wheels.

iv. What do you know about the skidding of vehicles?

Ans. When a vehicle stops quickly, a large force of friction is needed. But there is a strongly, the wheels of the car will lock up (rupturing) and vehicle slide over the road limit to this force of friction that tyres can provide. If the brakes are applied too. It is called skidding of vehicles.

v. What do you know about seatbelts?

Ans. A seat belt, also known as a safety belt, is a vehicle safety device designed to secure the occupant of a vehicle against harmful movement that may result during a collision or sudden stop.

vi. What do you know about the banking of roads?

Ans. "Banking of a road means that outer edge of a road is raised." Banking causes a component of vehicle's weight to provide the necessary centripetal force while taking a turn. Thus banking of the roads prevents skidding and makes the driving safe.

(vii) What do you know about cream separator?

Ans. In cream separator, the bowl spins at very high speed, the heavier contents of milk moves outward in the bowl. The lighter contents such as cream or butterfat push inwards towards the spinning axis. Therefore, skimmed milk which is denser than cream is collected at the outer wall of the bowl. The lighter contents are pushed towards the centre from where it is collected through a pipe.

Q.3.19 What would happen if all friction suddenly disappear?

Ans. Without friction, Life would be impossible. Raising a glass of water to your lips, to write a word in your notebook or to play in ground Would be distant dream. You could forget about driving your car down the street even walking across the road Would be tricky.

Q.3.20 Why the spinner of a washing machine is made to 'spin at a very high speed?

Ans. When the spinner of a washing machine is made to spin at very high speed, the centripetal force decreases. Due to centrifugal force, water from wet clothes extracted.

Chapter#4

Turning Effect of Force

Exercise Short Questions

Q.4.2 Define the following: (i) resultant vector (ii) centre of mass (iii) centre of gravity

Ans. (i) Resultant vector:

The sum of two or more vectors is a single vector which has the same effect as combine effect of all vectors to be added and that single vector is called resultant vector

Vector should be of same kind to get resultant vector.

(ii) Torque:

"The turning effect of a force is called torque."

It is a vector quantity. It is denoted by τ

Formula: Torque = force x moment arm

$$= F \times L$$

SI unit of torque is newton-metre (Nm).

(iii) Centre of mass:

Centre of mass of a system is such point where an applied force causes the system to move without rotation."

iv) Centre of gravity:

"A point where the whole weight of the body appears to act vertically downward is

called centre of gravity of a body." It is denoted by G'.

Q.4.3.(i) Differentiate like and unlike forces.

Ans.

Like parallel forces.

- Like parallel forces are the forces that are parallel to each other and have same direction.
- They have different lines of action.
- They produce torque.
- Example: Weights of every apple in a bag are like parallel forces.

Unlike parallel forces

- Unlike parallel forces are the forces that are parallel but have directions opposite to each other.
- They may have same or different lines of action
- They produce couple if they have different line of action.
- Example: weight of the apple and tension in the string are unlike parallel forces when the string is stretched due to weight of the apple.

(vi) Differentiate between stable and neutral equilibrium.

Neutral equilibrium

- If a body remain in its new position when disturbed from its previous position.
- In this position centre of gravity remains at the same height irrespective to its new position.
- Centre of the gravity of the body always act through the base of the body.

Stable equilibrium

- A body is said to be stable equilibrium if a slightest tilt return to its previous position.
- Height of centre of gravity can be changes.
- Centre of gravity of a body may or may not act through the base of the body.

Q.4.6 When a body is said to be in equilibrium.

Ans. "A body is said to be in equilibrium if no net force acts on it."

A body in equilibrium remains at rest or moves with uniform velocity.

Q.4.8 Why there is a need of second condition for equilibrium if a body satisfies first condition of equilibrium?

Ans. For a body to be in complete equilibrium, both conditions should be satisfied | i.e. both linear acceleration and angular acceleration should be zero.

In case of couple, two equal but opposites forces act. First condition of equilibrium is satisfied i.e. linear accelerations zero, yet it may rotate. It has angular acceleration.

For angular acceleration to be zero, the net torque acting on it should be zero.

Q.4.9 What is second condition for equilibrium?

Ans. "A body satisfies second condition for equilibrium when the resultant torque acting on it is zero."

Mathematically it is written as

Q.4.10 Give an example of a moving body which is in equilibrium.

Ans. "f the body is moving with uniform velocity it is said to be in dynamic equilibrium. So a paratrooper moving down with uniform velocity is said to be in

dynamic equilibrium.

Q4.11 Think of a body which is at rest but not in equilibrium.

Ans. When ball is thrown upward it becomes at rest at maximum height, at this it is not in equilibrium although it is at rest.

Q.4.12 Why a body cannot be in equilibrium due to single force acting on it?

Ans. According to first condition for equilibrium, a body is in state of equilibrium if the sum of all the forces acting on the body is zero. In case of a single force, the net force cannot be zero. Thus, the body can not be in equilibrium due to single force acting on it.

Q.4.13 Why the height of vehicles is kept as low as possible?

Ans. The height of a vehicle is kept as low as possible so that its centre of gravity remains as low as possible. A lower centre of gravity keeps the body ore stable.

Unit no. 3

Q 3.1 a force of 20N moves a body with an acceleration. What's its mass?

Data

Force = F = 20 N

Acceleration = a = 2 ms⁻²

To Find

Mass = m = ?

Solution:

We know that

F = ma

$$m = \frac{20}{2} = 10\text{kg}$$

Q 3.2 the weight of the body is 47N. what's its mass

Data:

Weight = W = 147N

Gravitational Acceleration = g = 10 ms⁻²

To Find

Mass = m = ?

Solution:

We know that

$$W = mg$$

$$m = \frac{W}{g}$$

$$= \frac{147}{10} = 14.7\text{kg}$$

Q 3.3 how much force is needed to prevent a body of mass 10Kg from falling

Data

Mass = m = ?

Gravitational Acceleration = g = 10 ms⁻²

To Find

Force = F = ?

Solution: Since force required to prevent a body from falling is equal to its weight

We know that

$$F = W$$

$$= mg$$

$$m = 10 \times 10 \\ = 100\text{N}$$

Q 3.4 find the acceleration produced by a force of 100N in a mass of 50Kg

Data:

$$\text{Force} = F = 1000 \text{ N}$$

$$\text{Mass} = m = 50\text{kg}$$

To Find

$$\text{Acceleration} = a = ?$$

Solution:

We know that

$$F = ma \\ a = \frac{F}{m}$$

$$= \frac{100}{50} = 2\text{ms}^{-2}$$

Q 3.5 A body has weight of 20N. how much force is required to move it vertically upwards with an acceleration of 2ms^{-2}

Data:

$$\text{Weight} = W = 20\text{N}$$

$$\text{Acceleration} = a = 2 \text{ ms}^{-2}$$

To Find

Force required to move the body upwards = ?

Solution:

We know that

$$W = mg$$

$$m = \frac{W}{g}$$

$$= \frac{20}{10} = 2\text{kg}$$

Also

$$F = ma \\ = 2 \times 2 = 4\text{N}$$

Force required to move the body upwards = $W + N$

$$= 20 + 4 \\ = 24 \text{ N}$$

Q3.6 Two masses 50Kg and 48Kg are attached to the ends of the string that passes over a frictionless pulley. Find the tension in the string and acceleration in the bodies when both the masses are moving vertically

Data

$$m_1 = 52\text{kg} , m_2 = 48\text{kg} , g = 10 \text{ ms}^{-2}$$

Acceleration = $a = ?$

Tension = $T = ?$

Solution:

We know that

$$a = \frac{(m_1 - m_2)g}{m_1 + m_2}$$

$$a = \frac{(52 - 48) \times 10}{52 + 48}$$

$$a = \frac{4 \times 10}{100} \\ a = 0.4 \text{ ms}^{-2}$$

Also $T = \frac{2m_1m_2g}{m_1 + m_2}$
 $T = \frac{2 \times 52 \times 48 \times 10}{52 + 48}$
 $T = \frac{49920}{100}$
 $T = 499.20\text{N}$

Q 3.7 two masses 26Kg and 24Kg are attached to the ends of a string which passes over a frictionless pulley. 26Kg is lying over a smooth horizontal table. 24N mass is moving vertically downward . find the tension in the string and the acceleration in the bodies

Data

$m_1 = 24\text{kg}$, $m_2 = 26\text{kg}$, $g = 10 \text{ ms}^{-2}$

Acceleration = $a = ?$

Tension = $T = ?$

Solution:

We know that $a = \frac{(m_1g)}{m_1 + m_2}$

$a = \frac{24 \times 10}{24 + 26}$

$a = \frac{240}{50}$
 $a = 4.8 \text{ ms}^{-2}$

Also $T = \frac{m_1m_2g}{m_1 + m_2}$
 $T = \frac{24 \times 26 \times 10}{24 + 26}$
 $T = \frac{6240}{50}$
 $T = 124.8\text{N or } 125$

Q3.8 how much time is required to change 22Ns momentum by a force of 20 N

Data

Change in momentum = $p_f - p_i = 22\text{Ns}$

Force = $F = 20\text{N}$

To Find

Time $t = ?$

Solution : We know that

$F = \frac{p_f - p_i}{t}$
 $t = \frac{p_f - p_i}{F}$
 $t = \frac{22}{20} = 1.1\text{s}$

Q3.9 how much is the force of friction between a wooden block of mass 5Kg and the horizontal marble floor? The coefficient of friction between wood and the marble is 0.6

Data

Mass = $m = 5\text{kg}$

Coefficient of friction = $\mu = 0.6$

Gravitational Acceleration = $g = 10 \text{ ms}^{-2}$

TO Find

Force of Friction = $F_s = ?$

Solution:

We know that $F_s = \mu R$ (Since $R = W = mg$)
 $= \mu mg$
 $= 0.6 \times 5 \times 10$
 $= 30\text{N}$

Q3.10 how much centripetal force is required to make a body of mass 0.5Kg to move in a circle of radius 50cm with the speed of 3ms^{-1}

Data

Mass = $m = 0.5\text{m}$

Radius = $r = 50\text{cm} = 0.5\text{ m}$

Speed = $v = 3\text{ ms}^{-1}$

To Find

Centripetal force = $F_c = ?$

Solution:

$$F_c = \frac{mv^2}{r}$$
$$= \frac{0.5 \times 3^2}{0.5}$$
$$= 9\text{N}$$

Unit 4

Q4.1 Find the resultant of the following forces.

- (i) 10N along x- axis
- (ii) 6N along y- axis
- (iii) 4N along negative x- axis

Data $F_1 = 10\text{N}$, $\theta_1 = 0^\circ$

$F_2 = 6\text{N}$, $\theta_2 = 90^\circ$

$F_3 = 4\text{N}$, $\theta_3 = 180^\circ$

To Find

Resultant Force = $F = ?$

Direction of resultant = $\theta = ?$

Solution:

We know that $F_{1x} = F_1 \cos\theta_1$
 $= 10 \cos 0^\circ$
 $= 10 \times 1$
 $= 10\text{N}$

$$F_{1y} = F_1 \sin\theta_1$$
$$= 10 \sin 0^\circ$$
$$= 10 \times 0$$
$$= 0\text{N}$$

$$F_{2x} = F_2 \cos\theta_2$$

$$\begin{aligned}
&= 6 \cos 90^\circ \\
&= 6 \times 0 \\
&= 0\text{N} \\
F_{2y} &= F_2 \sin \theta_2 \\
&= 6 \sin 90^\circ \\
&= 6 \times 1 \\
&= 6\text{N} \\
F_{3x} &= F_3 \cos \theta_3 \\
&= 4 \cos 180^\circ \\
&= 4 \times -1 \\
&= -4\text{N} \\
F_{3y} &= F_3 \sin \theta_3 \\
&= 4 \sin 180^\circ \\
&= 4 \times 0 \\
&= 0\text{N} \\
F_x &= F_{1x} + F_{2x} + F_{3x} \\
&= 10 + 0 - 4 \\
&= 6\text{N} \\
F_y &= F_{1y} + F_{2y} + F_{3y} \\
&= 0 + 6 + 0 \\
&= 6\text{N}
\end{aligned}$$

$$\begin{aligned}
F &= \sqrt{F_x^2 + F_y^2} \\
F &= \sqrt{6^2 + 6^2} \\
F &= \sqrt{36 + 36} \\
F &= \sqrt{72} \\
F &= 8.48\text{N}
\end{aligned}$$

$$\tan \theta = \frac{F_y}{F_x}$$

$$\tan \theta = \frac{6}{6}$$

$$\tan \theta = 1 \quad \theta = \tan^{-1}(1) \quad \theta = 45^\circ$$

Q4.2 find the perpendicular components of a force of 50N making an angle of 30° with x-axis

Data

Force = 50N

Angle = 45°

To Find

Horizontal component of force = $F_x = ?$

Vertical component of force = $F_y = ?$

Solution:

We know that

$$\begin{aligned}
F_x &= F \cos \theta \\
&= 50 \cos 30^\circ \\
&= 50 \times 0.866 \\
&= 43.3\text{N} \\
F_y &= F \sin \theta \\
&= 50 \sin 30^\circ \\
&= 50 \times 0.5 \\
&= 25\text{N}
\end{aligned}$$

Q4.3 find the magnitude and the direction of the force, if its x-components is 12N and y-components is 5N

Data x- component of force = $F_x = 12\text{N}$
y – component of force = $F_y = 5\text{N}$,

To Find

Magnitude of Force = $F = ?$

Direction of force = $\theta = ?$

Solution:

We know that $F = \sqrt{F_x^2 + F_y^2}$

$$F = \sqrt{12^2 + 5^2}$$

$$F = \sqrt{144 + 25}$$

$$F = \sqrt{169}$$

$$F = 13\text{N}$$

$$\theta = \tan^{-1} \frac{F_y}{F_x}$$

$$\theta = \tan^{-1} \frac{5}{12}$$

$$\theta = \tan^{-1} 0.4166$$

$$\theta = 22.6^\circ$$

Q4.4 a force of 100N is applied perpendicularly on a spanner at a distance of 10cm from a nut. Find the torque produced by the force

Data

Force = $F = 100\text{N}$

Moment arm = $L = 10\text{cm} = 0.10\text{m}$

To Find

Torque = $\tau = ?$

$$\tau = F \times L$$

$$= 100 \times 0.10$$

$$= 10\text{N}$$

Q4.5 a force is acting on a body making a angle of 30° with the horizontal. The horizontal component of the force is 20N. find the force

Data

Horizontal component of force = $F_x = 20\text{N}$

Angle = $\theta = 30^\circ$

To Find

Magnitude of force = $F = ?$

Solution:

We know that

$$F_x = F \cos\theta$$

$$F = \frac{F_x}{\cos\theta}$$

$$F = \frac{20}{\cos 30^\circ}$$

$$F = \frac{20}{0.866}$$

$$= 23.1\text{N}$$

Q4.6 the steering of the car has radius 16cm. find the torque produced by a couple of 50N

Data

$$\text{Force of couple} = F = 50\text{N}$$

$$\text{Radius of steering} = r = 16\text{cm} = 0.16$$

Perpendicular distance b/w force of couple = diameter of steering

$$= 2r = 2 \times 0.16 = 0.32\text{m}$$

To Find

$$\text{Torque of couple} = \tau = ?$$

$$\text{Torque of couple} = \text{Force} \times \text{Couple}$$

$$= 50 \times 0.32 = 16\text{Nm}$$

Q4.7 a picture frame is hanged by two vertical strings . the tensions in the strings are 3.8N and 4.4N. find the weight of the picture frame.

Data

$$T_1 = 3.8\text{ N}$$

$$T_2 = 4.4\text{ N}$$

To Find

$$\text{Weight} = W = ?$$

Solution:

According to the condition for equilibrium

$$\sum F_y = 0$$

$$F_y + F_y - W = 0$$

$$3.8 + 4.4 - W = 0$$

$$8.2 - W = 0$$

$$W = 8.2$$

Q4.8 two blocks of masses 5Kg and 3Kg are suspended by two strings as shown . find the tension in each string

Data

$$m_1 = 3\text{kg}$$

$$m_2 = 5\text{kg}$$

To Find

$$T_1 = ?$$

$$T_2 = ?$$

Solution:

$$T_1 = W_1 = ?$$

$$= m_1 g$$

$$= 3 \times 10$$

$$= 30\text{N}$$

$$T_1 = W_1 + W_1$$

$$= m_1 g + m_1 g$$

$$= 3 \times 10 + 5 \times 10$$

$$= 30 + 50$$

$$= 80\text{N}$$

Q4.9 a nut has been tightened by a force of 200n using 10cm long spanner. What the length of a spanner is required to loosen the same nut with 150N force

Data

Force = $F = 200\text{N}$

Moment arm = $L = 10\text{cm} = 0.1\text{m}$

To Find

Moment arm when force is 150 = $L = ?$

Solution:

We know that

$$\begin{aligned}\tau &= F \times L \\ &= 200 \times 0.1 \\ &= 20\text{N}\end{aligned}$$

when force become 150N then moment arm can be calculated as follows

$$\begin{aligned}\tau &= F \times L \\ 20 &= 150 \times L \\ L &= \frac{20}{150} \\ &= 0.133\text{m} \quad = 13.3\text{cm}\end{aligned}$$

Q4.10 a block of mass 10Kg is suspended at a distance of 20cm from the center of a uniform bar 1m long . what force is required to balance it at the center of the gravity by applying the force at the other end of the bar

Data

Mass of block = $m = 10\text{kg}$

Moment arm of the weight = $OA = 20\text{cm} = 0.2\text{m}$

Moment arm of the force = $OB = 50\text{cm} = 0.5\text{m}$

Total length of bar = 1m

To find

Force required to balance the bar = $F = ?$

We know that

According to the principle of moment

Clockwise moments = Anticlockwise moments

$W \times \text{Moment arm of } W = F \times \text{moment arm of } F$

$W \times OA = F \times OB$

$mg \times 0.2 = F \times 0.5$

$10 \times 10 \times 0.2 = F \times 0.5$

$20 = 0.5F$

$$F = \frac{20}{0.5}$$

$= 40\text{N}$

Subject: Pak-Studies

Madam Tabitta Riaz

[Second term syllabus Chapter 2 (Class 8 P/G/B)]

Chapter no. 2: MAKING OF PAKISTAN

Solved exercise:

Part-I

1. Four possible options are given for each statement. Mark (✓) on the correct option.

i. Who presented the Pakistan Resolution?

(a) A. K. Fazl-ul-Haque ✓

(b) Allama Iqbal

- (c) Moulana Muhammad Ali Jouhar (d) Sir Agha Khan
- ii. When did Sindh Muslim League pass a resolution in favor of partition?
 (a) 1908 (b) 1918 (c) 1928 (d) 1938 ✓
- iii. A mission of the British Government came to India in 1942 under the headship of
 (a) Sir Pethic Lawrence (b) Mr. A. V. Alexander
 (c) Sir Stafford Cripps ✓ (d) Lord Wavell
- iv. When did the Quaid-e-Azam presented his famous fourteen points?
 (a) 1909 (b) 1919 (c) 1929 ✓ (d) 1939
- v. Who presided over the session of Provincial as well as Central Legislatures elected on the ticket of Muslim League at Delhi on April, 1946?
 (a) Liaquat Ali Khan (b) Sardar Abdur Rab Nishtar
 (c) Allama Muhammad Iqbal (d) Quaid-e-Azam ✓
- vi. When was the Lucknow Pact made between Muslim League and Congress?
 (a) 1916 ✓ (b) 1926 (c) 1936 (d) 1946
- vii. How many ministers from Muslim League were included in the Interim Government 1946?
 (a) Two (b) Three (c) Four (d) Five ✓
- viii. When was The Indian Independence Act approved?
 (a) 14th August, 1947 (b) 18th July, 1947 ✓ (c) 24th October, 1948 (d) 3rd June, 19448
- ix. In which Annual Session of All India Muslim League was the Pakistan Resolution passed?
 (a) 1940 ✓ (b) 1929 (c) 1949 (d) 1946
- x. The year of Delhi Muslim proposals is:
 (a) 1926 (b) 1927 ✓ (c) 1932 (d) 1929
- xi. The World War II broke out in:
 (a) 1914 (b) 1919 (c) 1939 ✓ (d) 1945
- xii. When was the Battle of Palasi fought?
 (a) 1557 (b) 1657 (c) 1757 ✓ (d) 1857
- xiii. When did the Quaid-e-Azam join the Muslim League?
 (a) 1914 (b) 1913 ✓ (c) 1916 (d) 1919
- xiv. How many Princely States were there in the Sub-continent when the partition of India took place?
 (a) 605 (b) 615 (c) 625 (d) 635 ✓

2. Match Column "A" with the Column "B".

| Column "A" | Column "B" |
|--------------------------|------------|
| i) Simla Conference | 1942 |
| ii) Rowlatt Act | 1946 |
| iii) Cripps Mission | 1944 |
| iv) Cabinet Mission Plan | 1919 |
| v) Jinnah-Gandhi Talks | 1945 |

Answer:

| Column "A" | Column "B" |
|--------------------------|------------|
| i) Simla Conference | 1945 |
| ii) Rowlatt Act | 1919 |
| iii) Cripps Mission | 1942 |
| iv) Cabinet Mission Plan | 1946 |
| v) Jinnah-Gandhi Talks | 1944 |

3. Fill in the blanks.

- i. _____ launched the "Civil Disobedience Movement" and "Quit India Movement". (Gandhi)
- ii. The Muslims got _____ seats in the Provincial Assembly Elections in 1946. (428)
- iii. Cabinet Mission Plan consists of _____ British Ministers. (three)

- iv. When India was partitioned, _____ was the Viceroy of India. (Lord Mountbatten)
- v. The Lahore Resolution was presented by _____. (A.K. Fazal-ul-Haque)
- vi. Jinnah-Gandhi Talks began in the year _____. (1944)
- vii. The _____ Mission proposed to make India a Union. (Cabinet)
- viii. The Muslim League declared the day of 16th August, 1946 as _____. (Direct Action Day)
- ix. The head of Boundary Commission for the partition of India was _____. (Radcliff)
- x. The Indian Independence Act was approved on _____. (18th July 1947)

Part-II

4. Write the short answers.

i. Which resolution was presented by the Chief Minister Bengal, Mr. Hussain Shaheed Suhrawardy in the convention of Assembly Members in 1946?

Ans. The Resolution by Mr. Hussain Shaheed Suhrawardy declared that the zones comprising Bengal and Assam in the North-East and the Punjab, North West Frontier Province (Khyber Pakhtunkhwa), Sindh and Balochistan in the North-West of India; namely Pakistan zones where the Muslims are in a dominant majority, be constituted into a sovereign independent State and that an unequivocal undertaking be given to implement the establishment of Pakistan without delay."

ii. Narrate three proposals of Cripps Mission.

Ans. Proposals of the Cripps Mission:

- After the war, the Sub-continent will be under the Crown but the British Government would avoid interfering in internal as well as external affairs.
- Defense, Foreign Affairs, Communication etc. will be handed over to the Indians.
- Appropriate steps will be taken for the security of minorities.

iii. While presiding over the All India Muslim League session at Lahore in 1940, Quaid-e-Azam identified the direction for the struggle of the Muslims. Write any two points of this address.

Answer. Quaid-e-Azam Presidential Address:

While presiding over the All India Muslim League session at Lahore in 1940, Quaid-e-Azam identified the direction for the struggle of the Muslims. The main points of his address are as under:

- The Muslims are a separate nation because their customs, traditions, civilization, culture and above all religion is different from Hindus. In spite of the fact that they had been living together for centuries, both have their distinctive identification. If the Sub-continent gets freedom in the form of United India, the rights of the Muslims will not be protected.
- British India is a Sub-continent. It is not a country or homeland of a nation. Many nations are living here and their interests are separate from one another.

iv. What was the reply of Quaid-e-Azam in Jinnah-Gandhi talks 1944?

Answer. Reply of Quaid-e-Azam:

Quaid-e-Azam adjudged that the style adopted by Gandhi is nothing but cheating and hypocrisy and cunningness. He emphasized that the British must settle the issue of Pakistan before the freedom of India because Congress and Hindus could not be relied upon.

v. Many important personalities presented the opinion to partition India. Write the names of any five such personalities.

Answer. Many significant personalities like Abdul Haleem Sharar, Moulana Muhammad Ali Jouhar, Quaid-e-Azam Muhammad Ali Jinnah, Allama Iqbal and Chaudhary Rehmat Ali proposed for partition the Sub continent.

vi. How did the Provincial Groups formed in the Cabinet Mission Plan?

Answer. Cabinet Mission Plan 1946:

In 1945, Labour party came into power again.

Noticing the increasing political restlessness in India, the British Prime Minister, Lord Atlee sent a Cabinet Mission to India. This mission had two basic purposes:

The first purpose was to determine the Constitutional Status of India and the form of the Government. The second purpose was to bridge the gap between the Muslims and the Hindus, and try to convince the Muslims to live in the United India. But the General Elections proved that it was quite impossible. The Commission consisted of three Ministers:

- Sir Stafford Cripps
- Mr. A.V. Alexander
- Lord Pethic Lawrence

Since all the members belonged to British cabinet, it was called Cabinet Mission.

vii. Write any three points of the Wavell Plan.

Answer. Wavell Plan:

Lord Wavell was the British viceroy in India. He announced to call for a conference to think over the issues of the Sub-continent so that decisions could be taken regarding the constitution of the future, formation of the government and elections of the Assemblies. Following points were included in the Wavell Plan:

1. The constitution of the future will be made with the will of all the political forces.
2. The Viceroy's Executive Council will be reconstituted. Representatives of all -the political forces will be selected for it. Six Hindus and five Muslim representatives will be included in the Executive Council.
3. After reconstituting the Executive Council in the center, Executive Councils will be reconstituted in all the provinces.

viii. Describe the manifestoes of the Muslim League and the Congress in the General Elections 1945-46.

Answer. Manifestoes of Congress and Muslim League:

It was the manifesto of Congress that South-Asia will be liberated as a single unit No scheme of partition will be acceptable to them. Congress claimed itself to be the representative of all the communities and sections of the people living in the Sub-continent and that the Muslims also agree to the view point of the Congress.

Quaid-e-Azam affirmed that the General Elections will prove plebiscite regarding Pakistan. If the Muslims stood with the Muslim League, it meant they wanted Pakistan. Otherwise their demand for a separate homeland should be considered as rejected. Muslim League stepped in the arena of elections claiming that it was the only representative of the Muslims of Sub-continent. Although there existed some other Muslim parties, yet none of them represented the majority of the Muslims. Muslim League wanted the partition of South-Asia in accordance with the Pakistan Resolution. So the Muslims could have full authority in the areas having Muslims in majority.

ix. Write the text of Pakistan Resolution.

Answer. The 27 Annual Session of All India Muslim League was held at Lahore in the historical park "Iqbal Park on 23 of March 1940. It was presided over by the Quaid-e-Azam Muhammad Ali Jinnah. Great personalities like Moulana Zafar Ali Khan. Chaudhary Khaleeq-uz-Zaman, Qazi Muhammad Issa, Sir Abdullah Haroon, Sardar Abdur Rab Nishtar and Moulana Abdul Hamid Badayooni were present in this session. A large number of the Muslims from all over the Sub-continent participated in the session. A resolution named "Lahore Resolution" was presented in the session by the Tiger of Bengal A.K. Fazl-ul-Haque. It was passed unanimously among the cheers. Thus on this historical day, the Muslims identified their destination.

x. Write the names of five ministers of Muslim League included in the Interim Government.

Answer. The five ministers from Muslim League were as under:

- Liaquat Ali Khan
- Abdur Rab Nishtar
- Ibrahim Ismail Chundrigar
- Raja Ghazanfar Ali Khan

- Jogendra Nath Mandal

xi. Write the names of the members of Cabinet Mission Plan 1946.

Answer. The Commission consisted of three Ministers:

- Sir Stafford Cripps
- Mr. A.V. Alexander
- Lord Pethic Lawrence

Since all the members belonged to British cabinet, it was called Cabinet Mission.

xii. Narrate the stand point of Quaid-e-Azam on Rowlatt Act 1919.

Answer. Rowlatt Act 1919:

In 1919, Sir Sydney Rowlatt got an act passed. It was named as The Rowlatt Act. It was a black law. The administration was given unlimited powers and the civil rights were trodden upon. Quaid-e-Azam raised his voice against it. He wrote to the Viceroy Lord Chelmsford, "In my opinion the government that passes or sanctions such a law in times of peace forfeits its claim to be called a civilized Government."

xiii. How did the India occupy Kashmir?

Answer. There were 635 princely states in the sub-continent A large number of these states joined one either of the two countries. However, no decision could be made of the states of Jammu and Kashmir, Hyderabad Deccan, and Junagarh. Mangrol and Manawadar. Afterwards. India occupied these states. The Muslims were in minority in these states except Jammu and Kashmir. Therefore, Pakistan-arose the question of rights of the people with reference to the Muslim majority state Jammu and Kashmir. Pakistan is of the view that the right of self-determination of every state must be honored, and the future of the state must be decided in accordance with the wishes of the people.

xiv. Describe the holding of All parties Conference under the 3rd June, 1947 Plan.

Answer. All parties Conference:

When Mountbatten came back from London, he convened an All Parties Conference. Quaid-e-Azam, Liaquat Ali Khan, Sardar Abdur Rab Nishtar, Pandit Nehru, Sardar Patel, Acharya Kriplalani and Baldev Singh participated in it Viceroy of India explained the various aspects of the partition plan. Afterwards, he held separate meetings with leaders of each party. On 3rd June, 1947, the second session of the Conference was conducted. All the leaders approved the Plan. Despite the promise made with the Muslims had been breached and injustice was done to gain the goodwill of the leaders of the Congress, Quaid-e-Azam accepted the Plan unwillingly. The speeches of the representatives of both the major parties were broadcasted on radio. Quaid-e-Azam ended his speech with Pakistan Zinda Baad.

xv. How did the Quaid-e-Azam get the title of "Ambassador of Peace"?

Answer. Under Lucknow Pact. Quaid-e-Azam united both of the nations (The Hindus and the Muslims) in 1916. He got the right of separate electorates for the Muslims acknowledged and got the title of Ambassador of Peace.

Write the answers in detail.

5. Narrate the main points of the 3rd June, 1947 Plan.

Answer. Main Points of 3rd June 1947 Plan (Page no. 41-42)

The Government made the decision decide their future and join the country of their own choice.

6. Describe the background of the Pakistan Resolution, its basic points and the reaction of Hindus at the approval of the Resolution.

Answer. Background of the Pakistan Resolution (Page no. 20-21)

The Muslims wanted to secure themselves.....formed it as the demand of the Millat.

Text of Resolution (Page no. 22)

The resolution declare: No constitutional plan.....where they were in minority

Reaction to the resolution (Page no. 22-23)

The Hindu leaders began to express their.....after seven years only.

7. Why were the Elections of 1945-46 held? How did the results of these elections benefit the Muslims?

Answer. General elections 1945-46 (Page no. 28)

After the failure of Simla Conference.....India announced to contest the election.

Results of the Election (Page no. 30)

The Central Legislature elections were.....stop the creation of Pakistan now.

8. Describe the role of Quaid-e-Azam in the creation of Pakistan?

Answer. Quaid-e-Azam's Role in the making of Pakistan (Page no. 46-48)

The personality of Quaid-e-Azam changed..... and Pakistan came into being on 14th August. 1947.

9. Narrate the British Colonial System in India.

Answer. British Colonialism in India (Page no. 44-46)

The system of Government developed by.....differences between the Muslims and the Hindus

10. Write the salient features of the Cabinet Mission Plan 1946.

Answer. Proposals of Cabinet Mission (Page no. 33-35)

The members of the Cabinet Mission met the leaders.....Cabinet Mission Plan to form the Central Interim Government alone.

(NOTE: Second term syllabus is for writing and learning.)

**St. Mary's Convent Girls High School
2nd Semester Syllabus**

**English A and B
Blue**

**Class: 8 Pink, Green,
English A**

Unit no 4: Hazrat Asma

Answer these questions.

Who were emigrates and where did they

migrate to?

Q1.

Ans. The Rasool and his close companion, Hazrat Abu Siddique were emigrates and migrated from Makkah to Madina. understand by the phrase "In fit of fury" anger".

Q2. What do you

Ans. In a fit of fury means "extreme

Q3. Why was Abu Jehl furious?

Ans. Hazrat Abu Bakr posed a counter question that infuriated Abu Jehl. you can use for accepted?

Q4. What are the other words

Ans. We can use embrace for accepted.

Q5. Note the sequence of events in the text. Classify and organize the main traits of Hazrat Asma.

Ans. Helpful, Brave, Courageous, Wise, Generous, Open hearted.

Q6. What happened

when..... Hazrat Asma. (From book)

Ans. When Abu Jehl

asked about Hazrat Abu Bakr Siddique Hazrat Asma politely replied "How would I know".

Q7. Why was..... worried?

Ans. Hazrat Abu Quhafaa was worried because he thought that Abu Bakr Siddique had taken all the wealth leaving Hazrat Asma and children empty handed and helpless.

Q8. How did..... grandfather?

Ans. Hazrat

Asma asked her grandfather to touch the piece of cloth. In this way she consoled her grandfather.

Q9. Who was Hazrat Abdullah Bin Zubair?

Ans. Hazrat

Abdullah Bin Zubair was son of Hazrat Asma.

Q10. Which

incident..... Rasool.

Ans. Hazrat Asma took

risk of her life and managed to supply food to the P.B.U.H. This shows Hazrat Asma's respect for Rasool.

Q11. Which incident..... Asma.

Ans. Hazrat

Asma was so generous that she sold her inherited garden and gave away all the money to the poor and needy. Nobody ever returned empty- handed from her doorstep.

Q12. What message do..... Hazrat Asma?

Ans. We

get the message from the life of R.A that we should face hardships and difficulties with bravely and courageously.

Q13. "Her life..... How?

Ans. Hazrat Asma will always be remembered for her courage, generosity and wisdom. She had resolute faith in Allah Almighty.

Book Work

On page no 39 part D.

1.

Anaphoric, 2. Cataphoric, 3. Anaphoric, 4. Cataphoric, 5. Anaphoric, 6. Cataphoric, 7. Cataphoric.

On page no 40 part A.

Sensitive, 2. Forcefully, 3. Enraged, 4. Firm and Resolute.

B.

1) Abu Jehl was mad in anger when he came to know about migration of Rasool. 2) In a fit of fury Abu Jehl headed towards the house of Hazrat Abu Bakr Siddique. 3) Hazrat Asma did not reveal the secret. 4) We should have a resolute faith in Allah Almighty. 5) This medicine will alleviate the pain. 6) Migration of Holy Prophet was a great event in Islamic history. 7) Hazrat Abu Bakr was a great companion of Holy Prophet. 8) The King Bruce took refuge in a cave. 9) Hazrat Asma gave away all the money to the poor and needy. 10) If you are determined, you will get success.

On page no 42 part E.

In, 3. At, 4. To, 5. In, 6. Away, 7. Of

F.

e) In. f) On. g) In.

sentences on your own).

1. From, 2.

On page no 43 part

a) On, At. b) On. c) In. d) At.

On page no 41 part B. (Make

1) Courageous, 2) Emptiness, 3) Difficulty,

4) Generosity, 5) Resolution, 6) Suffering.

Part C.

1. The, 2. No article, 3. Kindness..... The noble needs, 4. The higher..... the cooler it is, 5. He is the, 6. The, 7. The Indus, 8. The Mount Everest..... The world, 9. Alizey is the most..... the school. 10.

Where are the.

Review:

1. Sensitive, 2. Firm and Resolute, 3. Revengeful, 4. Surprise, 5. Ready, 6. Fluency, 10. Loyalty.

Choose the correct option.

1.

Abstract noun, 2. Indefinite pronoun, 3. Anxious, 4. On, 5. The, 6. Exclamatory, 7. Will give, 8. Should, 9. Intransitive verb, 10. Let the window be opened.

Unit no 5: The Daffodils.

Answer

these questions.

Q1. How can you

compare the Daffodils with the stars?

Ans. We can compare the daffodils

with the stars as they are beautifying the Earth just as countless stars make the sky beautiful.

Q2. How does the poet feel in the company of the daffodils?

Ans. The poet feels

happy in the company of Daffodils.

Q3. What is the central idea

of the poem?

Ans. The poet pays a tribute to nature and its

manifestations in all its glory. It beautifully represents the attractive and exciting beauty of nature and also explains poet's love for nature.

Q2. What do

the..... In the poem? (On the book)

Ans. In the book Daffodils

represent the wealth of nature and its beauty.

Q3. What "wealth" poet?

Ans. The

memories of the scene gives the wealth of beauty, spiritual beauty and happiness to the poet.

Q4. List the..... poem.

Ans. The

words that heightened the sound effect in the poem in the poem are: clouds, lakes, breeze, star and crowd.

Q5. How has the poet heightened the impact of the poem by using the figurative language?

Ans. The poet assumes himself to be a cloud floating in the sky. The Poet prints images of lakes, fields, trees and stars.

BOOK WORK: P g no 54 A) Cloud and stars. B) .The waves have been personified.

Page no 55 : Part C (Identify Similes , Metaphors and Personifications)

Time is

money (Metaphor) , As busy as a bee(Simile) , The wind whispered the rumors of the forest (Personification) , As gentle as a lamb (Simile) , The sorry engine wheezed its death cough(Metaphor) ,The heart of lion (Metaphor) , The apple of my eye (Metaphor) ,As cunning as a fox (Simile) ,Brown grass was begging for water (Personification) ,As wise as an owl (Simile) ,Blanket of snow (Metaphor) , As black as a crow (Simile).

Part A (Use a thesaurus to find three more synonyms of the following words) Saw, glance, gaze, observed, watched, stare.

Shine, twinkle, sparkle, glimmer, flash, and shine.

Page no 56: (Part B) Specify positive and negative connotation of each of the following 1) Gaze _Positive, Stare_ Negative. 2) Shine _Positive, Glare _ Negative 3) Hoard _ Negative, Collect _ Positive.

Part A: Write the collective nouns of the following.

A) A collection of ships (A fleet of ships), B) A collection of singers (A choir of singers) C) A collection of cattle (A herd of cattle), D) A collection of soldiers (An army of soldiers).

Page no 57 Part B: Underline the prepositions of place in the poem:

The prepositions of place used in the poem are: At, Beside, Beneath, In, On, along, upon.

Part C: USE THE FOLLOWING WORDS IN SENTENCES

Behind: She is sitting behind the tree.

Beside: My friend always sits beside me.

Next to: The girl standing next to you is my sister.

Under: There are so many sea animals under the water.

Over: The cat is jumping over the wall.

Along: He likes to walk along the bank of river.

Across: There are so many fields across this canal.

Part D (Fill in the blanks with appropriate conjunctions)

1) He ran fast BUT he missed the train.

2) Wait TILL I return.

3) Work hard UNLESS you should fail.

4) I did not come BECAUSE you did not invite me.

5) You will get a prize IF you deserve it.

Unit no 6: The Quaid's Vision and Pakistan

answer these questions. (Questions are on book)

Q1. Why did the..... independence? Ans. The Quaid took long tours during their early days of independence to build confidence and to raise people's spirit.

Q2. Why did the..... Nation? Ans. The

Quaid wanted the oneness of the whole nation to make them strong and prosperous.

Q3. Are we working..... Leader?

Ans. No, we are not working according to the expectations of our great leader as we are not united and yet we are unable to make our country progressive and prosperous.

Q4. What is the..... Quaid? Ans.

The result of neglecting Quaid's advice is that we are facing so many problems and we are not united.

Q5. How much confidence..... Nation? Ans.

Quaid-e-Azam had much confidence in his nation and he thought that if people become united they can get their dignity and honor.

Q6. What was the..... Nation?

Ans. Quaid's concept of our nation was that "We are a nation", he affirmed three years before the birth of Pakistan, "with our own distinctive culture and civilization, language and literature, art and architecture, names and nomenclature, sense of values and proportion, legal laws and moral codes, customs and calendar, history and traditions, aptitude and ambitions__ in short, we have our own distinctive outlook of life.

Q7. What was the..... Quaid-e-Azam? Ans. In view of Quaid-e-Azam the ideology of Pakistan was based on the fundamental principle that the Muslims are an independent nation. Any attempt to merge their national and political identity will be strongly resisted.

Q8. What can be..... Problems? Ans. We can overcome our present difficulties by following the Quaid's golden motto, "Faith, Unity and Discipline".

Q9. How can we become a strong nation?

Ans. We can become a strong nation by remembering his advice to the youth, "It is now up to you to work, work and work and we are bound to succeed.

Book Work on pg. no 66 part A. 1. Said
emphatically, 2. Distinguish, 3. Fortitude, 4. Scared, 5. Cope with.

Part B. Find the synonyms:
1. Spirit, 2. Journey, 3. Aim, 4. Naming, 5. Recognition, 6. Distinguish, 7. Appearance, 8. Effort, 9. Many, 10. Powerful, 11. Idea. Part C.

Find the antonyms:
1. Doubt, 2. Dishonour, 3. Disbelief, 4. United, 5. Nonpolitical. Part D. (Make sentences on your own) on page no 67 part E.
(Do it by yourself) On page no 70 part A.

Find the kinds of adverb:
1. truly, 2. There or Lahore , 3. Today or early, 4. Daily, Often or only, 5. extremely or firmly.

Part D 1. Reading, 2. Stealing, 3. Losing, 4. Playing. Part E

1. You could have got success. 2. I
would have helped you. 3. I would

have invited him.

Summary of Unit no 5: Daffodils. "Nature is a volume, author of which is God".

This poem is written by William Wordsworth, a romantic poet. He is well known as a poet of nature because of his love for nature. It is a typical poem about nature. In this poem the poet describes the pleasant experience of his life. During a walk alone in the countryside, where the cool breeze was blowing and greenery spread as far as could be seen. He came across along unending line of blooming Daffodils along the side of the lake.

As Philip Larkin says,

"Deprivation is for me but Daffodils were for William Wordsworth" The waves were dancing happily with the daffodils in the poet's opinion

"The beauty of daffodils was more charming than the shimmering waves in the lake".

"A thing of beauty is a joy forever" The poet was delighted to see this beautiful sight. Beauty of the scene has been preserved in his memory.

As it is said, "O fateful flowers beside the rill,

The Daffodils, The Daffodils" The beautiful

scene is of Daffodils provides him a pleasant pleasure. Whenever he remembers it, his heart is filled with joy and pleasure. He feels that he is in the company of happy and joyful daffodils.

"And then my heart with pleasure fills, And dances with the Daffodils"

book. Note: Learn all the glossary from the

Learn and write letter no 5, 6, 7, 8.

Comprehension learn and write Paragraph: 5, 6, 7, 8.

Translation: Use of had. (Exercise)

1. The

farmer had no sickle, 2. Your brother had no pistol, 3. Our servant had no gun license, 4. They had a new plough, 5. Why had the blind beggar a lamp? , 6. Had a horse bridle and saddle? , 7. Nanhi had a strange dog, 8. How many tops had Asghar? , 9. We had no hound, 10. Had this city a clock tower? , 11. Why this river had no bridge? , 12. Why the soldier had no uniform? , 13. The guard had two flags. 14. The players had no luggage, 15. Had that cows no horns? , 16. Had the aero plane no passenger? , 17. Your house had no clock, 18. My bicycle had no bell, 19. The school had no peon, 20. The school's office had a big picture of Quaid-e-Azam.

Translation: Use of is/am/are and was/were.

Exercise.

1. Is there any high school in the city, 2. Is Amjad an honest man? , 3. Was he not a fisherman? , 4. I am thankful to you, 5. Both of his brothers were lawyers, 6. Which is the longest river of Pakistan? , 7. How high is K-2, 8. How many buses were there at the airport? , 9. Why were his relatives angry? , 10. Were

all the motor cars out of order? , 11. The student was not a liar, 12. Is this news true? , 13. This question is very complicated, 14. Were all the questions difficult? , 15. When was the doctor in the hospital?

Parts of Speech

Definition of Speech:

When we want to say something we use words. We generally use words in different combinations. A combination of words which makes complete sense is called a sentence. Example: 1. She goes to school, 2. Please bring me a glass of water.

Parts of speech:

The words used in a sentence are divided into different kinds or classes according to the work they do in sentence. These kinds or classes are called parts of speech. They are eight in number.

1. Noun, 2. Pronoun, 3. Adjective, 4. Preposition, 5. Verb, 6. Adverb, 7. Conjunction, 8. Interjection.

Noun:

Noun is a word we use to name a person, a place or a thing we can see, touch, smell, hear, taste or think of. Example: Muhammad Ali Jinnah was a great leader, 2. The Indus is the longest river in Pakistan.

The Noun: Number:

There are two

numbers in English, singular and plural. The singular number denotes one person or thing and the plural number denotes more than one person or thing.

Pronoun:

A pronoun is a word which is used instead of a noun. It is generally used to avoid repetition of a noun.

Example: 1. Afshan was absent because he was ill, 2. Razzaq did not play football because he was ill.

Adjective:

An adjective is

a word used to add to the meaning of a noun or a pronoun. It describes or points out a person, an animal, a place or a thing which the noun names or tells. Example: She is a pretty girl, 2. He is a lazy boy.

Preposition:

Preposition

is a word placed before a noun or a pronoun to show in what relation the person or a thing indicated by it stands in regard to something else. Example: He is fond of tea, He is ashamed of his behaviour.

Verb:

It is

a word that tells or says something about a person or a thing. We cannot make a sentence without a verb. It is therefore, the most important word in the sentence. Example: The girls were singing, 2. He speaks the truth.

Adverb:

An adverb is a word that qualifies the meaning of a word, an adjective or another verb. Example: You are a very clever boy, 2. She was walking slowly.

Conjunction:

It is a word

which is used merely to join together sentences and sometimes words. Example: He is poor but honest, Two and two makes four.

Interjection:

It is word

which is used to express sudden feelings or emotions. Example: Alas he is no more, Hush do not make a noise.

Class 8 Maths 2nd Term Syllabus

Unit 2 Real and Complex Number

Ex 2.1

Learn definition from your book

(Set of integers, rational and irrational numbers, terminating decimal and non-terminating decimal fraction.)

Q1. Convert the following fraction into decimal fraction .

a. $\frac{17}{25} = 0.68$

$\frac{19}{4} = 4.75$

$\frac{57}{8} = 7.125$

$\frac{205}{18} = 11.388$

b. $\frac{5}{8} = 0.625$

$\frac{25}{38} = 0.65789$

Q2. Give a rational number between $\frac{3}{4}$ and $\frac{5}{9}$.

Required number = (sum of two numbers) \div 2

$$\begin{aligned}
 &= \left(\frac{3}{4} + \frac{5}{9}\right) \div 2 \\
 &= \left(\frac{27 + 20}{36}\right) \times \frac{1}{2} \\
 &= \frac{47}{36} \times \frac{1}{2} = \frac{47}{72}
 \end{aligned}$$

Q3. Express the following recurring decimals as the rational number $\frac{p}{q}$ where p, q are integer and q \neq 0.

a. Let $x = 0.\overline{5}$

$$x = 0.55555\dots\dots\dots a$$

Multiplying both sides by 10

$$10x = 10(0.5555\dots\dots\dots)$$

$$10x = 5.5555 \dots\dots b$$

Subtract a from b

$$10x - x = 5.5555\dots\dots - 0.55555\dots\dots$$

$$9x = 5$$

$$x = \frac{5}{9}$$

b. Let $x = 0.\overline{13}$

$$x = 0.13131313\dots\dots\dots a$$

Multiplying both sides by 100

$$100x = 100(0.131313\dots\dots\dots)$$

$$100x = 13.131313 \dots\dots b$$

Subtract a from b

$$100x - x = 13.131313\dots\dots - 0.131313\dots\dots$$

$$99x = 13$$

$$x = \frac{13}{99}$$

c. Let $x = 0.\overline{67}$

$$x = 0.676767\dots\dots\dots a$$

Multiplying both sides by 100

$$100x = 100(0.676767\dots\dots\dots)$$

$$100x = 67.676767 \dots\dots b$$

Subtract a from b

$$100x - x = 67.676767\dots\dots - 0.676767\dots\dots$$

$$99x = 67$$

$$x = \frac{67}{99}$$

Ex 2.2

Note; Learn properties of real numbers with respect to addition and multiplication from your book.

Q1. Identify the property used in the following.

- | | | |
|------|-------------------------------|--|
| I. | $a + b = b + a$ | commutative property w.r.t.addition |
| II. | $(ab)c = a(bc)$ | associative property w.r.t.multiplication |
| III. | $7 \times 1 = 7$ | multiplicative Identity |
| IV. | $x > y$ or $x = y$ or $x < y$ | Trichotomy property of inequality |
| V. | $ab = ba$ | commutative property w.r.t. multiplication |

- VI. $a + c = b + c \Rightarrow a = b$ cancellation property w.r.t.addition
 VII. $5 + (-5) = 0$ Additive inverse
 VIII. $7 \times \frac{1}{7} = 1$ multiplicative Inverse
 IX. $a > b \Rightarrow ac > bc$ ($c > 0$) multiplicative property of inequality

Q2. Fill in the blanks by stating the property of real numbers used.

$$\begin{aligned} & 3x + 3(y - x) \\ &= 3x + 3y - 3x \quad \text{Distributive property} \\ &= 3x - 3x + 3y \quad \text{commutative property} \\ &= 0 + 3y \quad \text{Additive inverse}(3x, -3y) \\ &= 3y \quad \text{Additive identity}(0 + a = a) \end{aligned}$$

Q3. Identify the property used in the following.

- I. $\sqrt{24} + 0 = \sqrt{24}$
 II. $-\frac{2}{3}\left(5 + \frac{7}{2}\right) = \left(-\frac{2}{3}\right)(5) + \left(-\frac{2}{3}\right)\left(\frac{7}{2}\right)$
 III.
 IV. $\sqrt{3} \cdot \sqrt{3}$ is a real number
 V. $\left(-\frac{5}{8}\right)\left(-\frac{8}{5}\right)$

Ex 2.3

Q1. Write each radical expressions in exponential notation and each exponential expression into radical notation . do not simplify

- i. $3\sqrt{-64} = (-64)^{\frac{1}{3}}$
 ii. $2^{\frac{2}{3}} = (2^3)^{\frac{1}{5}} = \sqrt[5]{2^3}$
 iii. $-7^{\frac{1}{3}} = -\sqrt[3]{7}$
 iv. $y^{\frac{-2}{3}} = (y^{-2})^{\frac{1}{3}} = \sqrt[3]{y^{-2}}$

Q3. Simplify the following radical expressions

- i. $\sqrt[3]{-125} = (-125)^{\frac{1}{3}} = [(-5^3)]^{\frac{1}{3}} = (-5)^{3 \times \frac{1}{3}} \checkmark$
 ii. $\sqrt[4]{32} = (2^5)^{\frac{1}{4}} = (2^4 \cdot 2)^{\frac{1}{4}} = 2^{4 \times \frac{1}{4}} \cdot (2)^{\frac{1}{4}} = 2 \cdot \sqrt[4]{2}$
 iii. $\sqrt[5]{\frac{3}{32}} = \left(\frac{3}{32}\right)^{\frac{1}{5}} = \frac{3^{\frac{1}{5}}}{2^{5 \times \frac{1}{5}}} = \frac{\sqrt[5]{3}}{2}$
 iv. $\sqrt[3]{\frac{-8}{27}} = \left(\frac{-8}{27}\right)^{\frac{1}{3}} = \left(\frac{-2 \times -2 \times -2}{3^3}\right)^{\frac{1}{3}} = -\frac{2^{\frac{3 \times \frac{1}{3}}{3}}}{3^{\frac{3 \times \frac{1}{3}}{3}}} = -\frac{2}{3}$

EX 2.4

Q1. Use laws of exponents to simplify

$$\begin{aligned}
 \text{i. } & \frac{(243)^{\frac{-2}{3}} (32)^{\frac{-1}{5}}}{\sqrt{(196)^{-1}}} \\
 = & \frac{\sqrt{196}}{(243)^{\frac{2}{3}} \cdot (32)^{\frac{1}{5}}} \\
 = & \frac{\sqrt{14^2}}{(3^5)^{\frac{2}{3}} \cdot (2^5)^{\frac{1}{5}}} \\
 = & \frac{14}{3^{5 \times \frac{2}{3}} \cdot 2^{5 \times \frac{1}{5}}} \\
 = & \frac{14}{(3)^{\frac{10}{3}} \cdot 2} \\
 = & \frac{3^{\frac{9+1}{3}}}{7} \\
 = & \frac{3^{\frac{9+1}{3}}}{7} \\
 = & \frac{3^{3+\frac{1}{3}}}{7} \\
 = & \frac{3^3 \cdot (3)^{\frac{1}{3}}}{7} \\
 = & \frac{27 \cdot \sqrt[3]{3}}{7}
 \end{aligned}$$

$$\begin{aligned}
 \text{ii. } & (2x^5 y^{-4}) (-8x^{-3} \cdot y^2) \\
 = & 2(-8) x^{5-3} y^{-4+2} \\
 = & -16 x^2 y^{-2} \\
 = & -16 \frac{x^2}{y^2}
 \end{aligned}$$

$$\begin{aligned}
 \text{iii. } & \left(\frac{x^{-2} y^{-1} z^{-4}}{x^4 y^{-3} z^0} \right)^{-3} \\
 = & (x^{-2-4} \cdot y^{-1+3} \cdot z^{-4-0})^{-3} \\
 = & (x^{-6} \cdot y^2 \cdot z^{-4})^{-3} \\
 = & (x^{-6 \times -3} \cdot y^{2 \times -3} \cdot z^{-4 \times -3}) \\
 = & (x^{18} \cdot y^{-6} \cdot z^{12}) \\
 = & \frac{x^{18} z^{12}}{y^6}
 \end{aligned}$$

$$\begin{aligned}
 \text{iv. } & \frac{(81)^n \cdot 3^5 - 3^{4n-1} \cdot 243}{(3^4)^n \cdot 3^5 - 3^{4n-1} \cdot 3^5} \\
 = & \frac{9^{2n} \cdot 3^3}{(3^2)^{2n} \cdot 3^3} \\
 = & \frac{3^{4n+5} - 3^{4n+5}}{3^{4n+3}} \\
 = & \frac{3^{4n+5}}{3^{4n+3}} - \frac{3^{4n+4}}{3^{4n+3}} \\
 = & 3^{4n+5-4n-3} - 3^{4n+4-4n-3} \\
 = & 3^{5-3} \cdot 3^{4-3} \\
 = & 3^2 \cdot 3^1
 \end{aligned}$$

$$= 9 - 3 = 6$$

Q2 Show that.

$$\begin{aligned}
 &= \left(\frac{x^a}{x^b}\right)^{a+b} \times \left(\frac{x^b}{x^c}\right)^{b+c} \times \left(\frac{x^c}{x^a}\right)^{c+a} = 1 \\
 &= (x^{a-b})^{a+b} \times (x^{b-c})^{b+c} \times (x^{c-a})^{c+a} = 1 \\
 &= x^{(a-b)(a+b)} \times x^{(b-c)(b+c)} \times x^{(c-a)(c+a)} = 1 \\
 &= x^{a^2-b^2} \times x^{b^2-c^2} \times x^{c^2-a^2} = 1 \\
 &= x^{\cancel{a^2-b^2} + \cancel{b^2-c^2} + \cancel{c^2-a^2}} = 1 \\
 &= x^0 \\
 &1 = 1
 \end{aligned}$$

$$\begin{aligned}
 \text{Q3. } &\sqrt{\frac{(216)^{\frac{2}{3}} \times (25)^{\frac{1}{2}}}{(0.4)^{-\frac{1}{2}}}} \\
 &= \sqrt{(216)^{\frac{2}{3}} \times (25)^{\frac{1}{2}} \times (0.4)^{\frac{1}{2}}} \\
 &= \sqrt{(6)^{3 \times \frac{2}{3}} \times (5)^{2 \times \frac{1}{2}} \times \left(\frac{4}{100 \times 25}\right)^{\frac{1}{2}}} \\
 &= \sqrt{6^2 \times (5) \times \left(\frac{1}{25}\right)^{\frac{1}{2}}} \\
 &= \sqrt{6^2 \times (5) \times \frac{1}{5^2 \times \frac{1}{5}}} \\
 &= \sqrt{6^2 \times (5) \times \frac{1}{5^2 \times \frac{1}{5}}} \\
 &= \sqrt{6^2 \times (5) \times \frac{1}{5}} \\
 &= \sqrt{6^2} \\
 &= 6
 \end{aligned}$$

$$\begin{aligned}
 \text{Q3 } &5^{2^3} \div (5^2)^3 \\
 &= 5^8 \div 5^6 \\
 &= \frac{5^8}{5^6} \\
 &= 5^{8-6} \\
 &= 5^2 \\
 &= 25
 \end{aligned}$$

$$\begin{aligned}
 \text{Q. } &(x^3)^2 \div x^{3^2} \\
 &= x^6 \div x^9 \\
 &= \frac{x^6}{x^9} \\
 &= x^{6-9} \\
 &= x^{-3} \\
 &= \frac{1}{x^3}
 \end{aligned}$$

Ex. 2.6

Q2. Express each complex numbers in the standard form a+bi, where a and b are the real numbers

$$\begin{aligned}
 \text{a. } &(2 + 3i) + (7 - 2i) \\
 &= 2 + 3i + 7 - 2i
 \end{aligned}$$

$$= 2 + 7 + 3i - 2i$$

$$= 9 + i$$

b. $2(5 + 4i) - 3(7 + 4i)$

$$= 10 + 8i - 21 - 12i$$

$$= 10 - 21 + 8i - 12i$$

$$= -11 - 4i$$

c. $-1(-3 + 5i) - (4 + 9i)$

$$= 3 - 5i - 4 - 9i$$

$$= 3 - 4 - 5i - 9i$$

$$= -1 - 14i$$

Q3. Simplify and write your answer in the form of a+bi

a. $(-7 + 3i)(-3 + 2i)$

$$= 21 - 14i - 9i + 6i^2$$

$$= 21 - 23i + 6(-1)$$

$$= 21 - 6 - 23i$$

$$= 15 - 23i$$

b. $(2 - \sqrt{-4})(2 - \sqrt{-4})$

$$= (2 - \sqrt{-4} \cdot \sqrt{-1})(2 - \sqrt{-4} \cdot \sqrt{-1})$$

$$= (2 - 2i)(3 - 2i)$$

$$= 6 - 4i - 6i + 4i^2$$

$$= 6 - 10i + 4(-1)$$

$$= 6 - 10i - 4$$

$$= 2 - 10i$$

c. $(\sqrt{5} - 3)^2$

$$= (\sqrt{5})^2 + 3i^2 - 2(\sqrt{5})(3i)$$

$$= 5 + 9i^2 - 6\sqrt{5}i$$

$$= 5 + 9(-1) - 6\sqrt{5}i$$

$$= 5 - 9 - 6\sqrt{5}i$$

$$= -4 - 6\sqrt{5}i$$

d. $(2 - 3i)(\overline{3 - 2i})$

$$= (2 - 3i)(3 + 2i)$$

$$= 6 + 4i - 9i - 6i^2$$

$$= 6 - 5i - 6(-1)$$

$$= 6 - 5i + 6$$

$$= 12 - 5i$$

Q.4 simplify and write your answer in the form of a+bi

$$\begin{aligned}
 \text{a. } & \frac{-2}{1+i} \\
 &= \frac{-2}{1+i} \times \frac{1-i}{1-i} \\
 &= \frac{-2(1-i)}{1^2 - i^2} \\
 &= \frac{-2(1-i)}{1 - i^2} \\
 &= \frac{-2(1-i)}{1 - (-1)} \\
 &= \frac{-2(1-i)}{1+1} \\
 &= \frac{-2(1-i)}{2} \\
 &= -(1-i) \\
 &= -1 + i
 \end{aligned}$$

$$\begin{aligned}
 \text{b. } & \frac{2+3i}{4-i} \\
 &= \frac{2+3i}{4-i} \times \frac{4+i}{4+i} \\
 &= \frac{(2+3i)(4+i)}{4^2 - i^2} \\
 &= \frac{8-2i+12i+3i^2}{16 - i^2} \\
 &= \frac{8+14i+3(-1)}{16 - (-1)} \\
 &= \frac{8+14i-3}{16+1} \\
 &= \frac{5+14i}{17} \\
 &= \frac{5}{17} + \frac{14}{17}i
 \end{aligned}$$

$$\text{c. } \frac{9-7i}{3+i}$$

$$\begin{aligned}
 & \frac{9-7i}{3+i} \times \frac{3-i}{3-i} \\
 &= \frac{(9-7i)(3-i)}{3^2 - i^2} \\
 &= \frac{27-9i-21i+7i^2}{9 - i^2} \\
 &= \frac{27-30i+7(-1)}{9 - (-1)} \\
 &= \frac{27-30i-7}{9+1} \\
 &= \frac{20-30i}{10} \\
 &= \frac{20}{10} - \frac{30}{10}i \\
 &= 2 - 3i
 \end{aligned}$$

$$\begin{aligned}
 \text{d. } & \frac{2-6i}{3+i} - \frac{4+i}{3+i} \\
 &= \frac{(2-6i) - (4+i)}{3+i} \\
 &= \frac{2-6i-4-i}{3+i} \\
 &= \frac{-2-7i}{3+i} \\
 &= \frac{-2-7i}{3+i} \times \frac{3-i}{3-i} \\
 &= \frac{(-2-7i)(3-i)}{3^2 - i^2} \\
 &= \frac{-6+2i-21i+7i^2}{9 - i^2} \\
 &= \frac{-6-19i+7(-1)}{9 - (-1)} \\
 &= \frac{-6-19i-7}{9+1} \\
 &= \frac{-13-19i}{10} \\
 &= -\frac{13}{10} - \frac{19}{10}i
 \end{aligned}$$

$$\begin{aligned}
 \text{e. } & \left(\frac{1+i}{1-i}\right)^2 \\
 &= \left(\frac{1^2 - i^2 + 2 \times 1 \times i}{1^2 + i^2 - 2 \times 1 \times i}\right) \\
 &= \frac{1 - i^2 + 2i}{1 + i^2 - 2i} \\
 &= \frac{1 - 1 + 2i}{1 - 1 - 2i} \\
 &= \frac{2i}{-2i} \\
 &= -1 + 0i
 \end{aligned}$$

$$\begin{aligned}
 \text{F. } & \frac{1}{(2+3i)(1-i)} \\
 &= \frac{1}{2-2i+3i-3i^2} \\
 &= \frac{1}{2+i-3(-1)} \\
 &= \frac{1}{2+i+3} \\
 &= \frac{1}{5+i} \\
 &= \frac{1}{5+i} \times \frac{5-i}{5-i} \\
 &= \frac{5-i}{5^2 - i^2} \\
 &= \frac{5-i}{25 - (-1)} \\
 &= \frac{5-i}{25+1} = \frac{5-i}{26} = \frac{5}{26} - \frac{1}{26}i
 \end{aligned}$$

Q6. If $z = 2 + 3i$ and $w = 5 - 4i$ show that

$$\begin{aligned} \text{i) } \frac{z + w}{2 + 3i + 5 - 4i} &= \frac{\bar{z} + \bar{w}}{\overline{2 + 3i} + \overline{5 - 4i}} \\ &= \frac{7 - i}{2 - 3i + 5 + 4i} \\ &= \frac{7 + i}{2 + 5 - 3i + 4i} \\ &= \frac{7 + i}{7 + i} \\ \text{L.H.S} &= \text{R.H.S} \end{aligned}$$

$$\begin{aligned} \text{ii) } \frac{\overline{z - w}}{(2 + 3i) - (5 - 4i)} &= \frac{\bar{z} - \bar{w}}{\overline{2 + 3i} - \overline{5 - 4i}} \\ &= \frac{(2 + 3i) - 5 + 4i}{2 - 5 + 3i + 4i} = \frac{(2 - 3i) - (5 + 4i)}{2 - 5 - 3i - 4i} \\ &= \frac{-3 + 7i}{-3 - 7i} = \frac{2 - 5 - 3i - 4i}{-3 - 7i} \\ \text{L.H.S} &= \text{R.H.S} \end{aligned}$$

$$\begin{aligned} \text{iii) } \frac{\overline{z w}}{(2 + 3i)(5 - 4i)} &= \frac{\bar{z} \cdot \bar{w}}{(\overline{2 + 3i}) \cdot (\overline{5 - 4i})} \\ &= \frac{(10 - 8i) + 15i - 12i^2}{(2 - 3i)(5 + 4i)} \\ &= \frac{10 + 7i - 12(-1)}{10 + 8i - 15i - 12i^2} \\ &= \frac{10 + 7i + 12}{10 - 7i - 12(-1)} \\ &= \frac{22 + 7i}{10 - 7i + 12} \\ &= \frac{22 - 7i}{22 - 7i} \\ \text{L.H.S} &= \text{R.H.S} \end{aligned}$$

$$\begin{aligned} \text{iv) } \left(\frac{z}{w}\right) &= \frac{\bar{z}}{\bar{w}}, \text{ where } w \neq 0 \\ \text{L.H.S} &= \frac{\bar{z}}{\bar{w}} \\ \left(\frac{z}{w}\right) &= \frac{(2+3i)}{(5-4i)} \\ &= \left(\frac{2+3i}{5-4i}\right) \times \left(\frac{5+4i}{5+4i}\right) \\ &= \frac{(2+3i)(5+4i)}{5^2-4i^2} \\ &= \frac{10+8i+15i+12i^2}{25-4i^2} \\ &= \frac{10+23i+12(-1)}{25-16(-1)} \\ &= \frac{10+23i-12}{25+16} \\ &= \frac{-2+23i}{41} \\ &= -\frac{2}{41} + \frac{23}{41}i \\ \overline{\left(\frac{z}{w}\right)} &= -\frac{2}{41} - \frac{23}{41}i \end{aligned}$$

$$\begin{aligned} \text{i) } \text{RHS } \frac{\bar{z}}{\bar{w}}, (\bar{z} = 2 - 3i, \bar{w} = 5 + 4i) \\ \frac{\bar{z}}{\bar{w}} &= \frac{2-3i}{5+4i} \end{aligned}$$

$$\begin{aligned}
&= \left(\frac{2-3i}{5+4i}\right) \times \left(\frac{5-4i}{5-4i}\right) \\
&= \left(\frac{(2-3i)(5-4i)}{5^2-4i^2}\right) \\
&= \frac{10-8i-15i+12i^2}{25-16i^2} \\
&= \frac{10-23i+12(-1)}{25-16(-1)} \\
&= \frac{10-23i-12}{25+16} \\
&= \frac{-2-23i}{41} \\
\frac{\bar{z}}{\bar{w}} &= -\frac{2}{41} - \frac{23}{41}i \\
\text{LHS} &= \text{RHS}
\end{aligned}$$

(v) $\frac{1}{2}(z + \bar{z})$ is the real part of Z

$$Z = 2 + 3i, \quad \bar{z} = 2 - 3i$$

$$\text{Re}(Z) = 2 \dots \dots \dots \text{(i)}$$

$$\frac{1}{2}(z + \bar{z}) = \frac{1}{2}(2 + 3i + 2 - 3i)$$

$$\frac{1}{2}(z + \bar{z}) = \frac{1}{2}(4)$$

$$\frac{1}{2}(z + \bar{z}) = 2 \dots \dots \dots \text{(ii)}$$

From i and ii Hence it is proved

$$\frac{1}{2}(z + \bar{z}) = \text{Re}(z)$$

(vi) $\frac{1}{2i}(z - \bar{z})$ is the imaginary part of Z

$$Z = 2 + 3i, \quad \bar{z} = 2 - 3i$$

$$\text{Im}(Z) = 3 \dots \dots \dots \text{(i)}$$

$$\frac{1}{2i}(z - \bar{z}) = \frac{1}{2i}(2 + 3i) - (2 - 3i)$$

$$\frac{1}{2i}(z - \bar{z}) = \frac{1}{2i}(2 + 3i - 2 + 3i)$$

$$\frac{1}{2i}(z - \bar{z}) = \frac{6i}{2i}$$

$$\frac{1}{2i}(z - \bar{z}) = 3 \dots \dots \dots \text{(ii)}$$

From i and ii Hence it is proved

$$\frac{1}{2i}(z - \bar{z}) = \text{Im}(z)$$

Q7. Solve the following equation for real x and y.

a. $(2 - 3i)(x + yi) = 4 + i$

$$(x + yi) = \frac{4+i}{2-3i}$$

$$= \frac{4+i}{2-3i} \times \frac{2+3i}{2+3i}$$

$$= \frac{(4+i)(2+3i)}{2^2-3i^2}$$

$$= \frac{8+12i+2i+3i^2}{4-9i^2}$$

$$\begin{aligned}
 &= \frac{8-14i+3(-1)}{4-9(-1)} \\
 &= \frac{8-3+14i}{4+9} \\
 &= \frac{5+14i}{13} \\
 (x + yi) &= \frac{5}{13} - \frac{14}{13}i
 \end{aligned}$$

(Review chp 2) Q4. Simplify

$$\begin{aligned}
 &\sqrt[4]{81 y^{-12} x^8} \\
 &(3^4 y^{-12} x^8)^{\frac{1}{4}} \\
 &3^{4 \times \frac{1}{4}} y^{-12 \times \frac{1}{4}} x^{8 \times \frac{1}{4}} \\
 &3 y^{-3} x^2 \\
 &\frac{3 x^2}{y^3}
 \end{aligned}$$

$$\begin{aligned}
 &\sqrt{25 x^{10n} y^{8n}} \\
 &(5^2 x^{10n} y^{8n})^{\frac{1}{2}} \\
 &5^{2 \times \frac{1}{2}} x^{10n \times \frac{1}{2}} y^{8n \times \frac{1}{2}} \\
 &5 x^{5n} y^{4n}
 \end{aligned}$$

Q4. Simplify

$$\begin{aligned}
 &\sqrt{\frac{(216)^{\frac{2}{3}} \times (25)^{\frac{1}{2}}}{(0.04)^{\frac{-3}{2}}}} \\
 &= \sqrt{(216)^{\frac{2}{3}} \times (25)^{\frac{1}{2}} \times (0.04)^{\frac{-3}{2}}} \\
 &= \sqrt{(6)^{3 \times \frac{2}{3}} \times (5)^{2 \times \frac{1}{2}} \times \left(\frac{4}{100}\right)^{\frac{-3}{2}}} \\
 &= \sqrt{6^2 \times (5) \times \left(\frac{1}{25 \times 5^2}\right)^{\frac{-3}{2}}} \\
 &= \sqrt{6^2 \times (5) \times \frac{1}{5^{2 \times \frac{-3}{2}}}} \\
 &= \sqrt{6^2 \times (5) \times \frac{1}{5^3}} \\
 &= \sqrt{6^2 \times \frac{1}{5^{3-1}}} \\
 &= \sqrt{\frac{6^2}{5^2}} = \frac{6}{5}
 \end{aligned}$$

Q5. Simplify

$$\begin{aligned}
 &\left(\frac{a^p}{a^q}\right)^{p+q} \cdot \left(\frac{a^q}{a^r}\right)^{q+r} \div 5(a^p \cdot a^r)^{p-r} \\
 &(a^{p-q})^{p+q} \cdot (a^{q-r})^{q+r} \div 5(a^{p+r})^{p-r} \\
 &a^{p^2-q^2} \cdot a^{q^2-r^2} \div 5a^{p^2-r^2} \\
 &a^{p^2-q^2+q^2-r^2} \div 5a^{p^2-r^2}
 \end{aligned}$$

$$\frac{a^{p^2-r^2}}{5p^{2-r^2}}$$

$$\frac{a^{p^2-r^2-p^2+r^2}}{5}$$

$$\frac{a^0}{5}$$

$$\frac{1}{5}$$

Q6. $\left(\frac{a^{2l}}{a^{l+m}}\right) \left(\frac{a^{2m}}{a^{m+n}}\right) \left(\frac{a^{2n}}{a^{n+l}}\right)$

$$= a^{2l-l-m} \times a^{2m-m-n} \times a^{2n-n-l}$$

$$= a^{l-m} \cdot a^{m-n} \cdot a^{n-l}$$

$$= a^{l-m+m-n+n-l}$$

$$= a^0$$

$$= 1$$

Q7. Simplify

$$\sqrt[3]{\frac{a^l}{a^m}} \times \sqrt[3]{\frac{a^m}{a^n}} \times \sqrt[3]{\frac{a^n}{a^l}}$$

$$\left(\frac{a^l}{a^m}\right)^{\frac{1}{3}} \cdot \left(\frac{a^m}{a^n}\right)^{\frac{1}{3}} \cdot \left(\frac{a^n}{a^l}\right)^{\frac{1}{3}}$$

$$\frac{a^{\frac{l}{3}}}{a^{\frac{m}{3}}} \times \frac{a^{\frac{m}{3}}}{a^{\frac{n}{3}}} \times \frac{a^{\frac{n}{3}}}{a^{\frac{l}{3}}}$$

$$= 1$$

EX 2. 5

Learn the definitions of complex number ,Imaginary number ,conjugate of complex number.

Q.1 Evaluate

(i) i^7

$$= i^7 \cdot i$$

$$= (i^2)^3 \cdot i \quad (i^2 = -1)$$

$$= (-1)^3 \cdot i$$

$$= -1 \times i = -i$$

(ii) i^{50}

$$= (i^2)^{25} \quad (i^2 = -1)$$

$$= (-1)^{25}$$

$$= -1$$

(iii) i^{27}

$$= i^{26} \cdot i$$

$$= (i^2)^{13} \cdot i \quad (i^2 = -1)$$

$$= (-1)^{13} \cdot i$$

$$= -1 \times i = -i$$

(iv) i^{12}

$$= (i^2)^6 \quad (i^2 = -1)$$

$$= (-1)^6$$

$$= 1$$

$$\begin{aligned}
\text{(v)} \quad & -i^5 \\
& = -(i^4 \cdot i) \\
& = -[(i^2)^2 \cdot i] \quad (i^2 = -1) \\
& = -[(-1)^2 \cdot i] \\
& = -[1 \times i] \\
& = -i
\end{aligned}$$

$$\begin{aligned}
\text{(vi)} \quad & (-i)^8 = i^8 \\
& = (i^2)^4 \quad (i^2 = -1) \\
& = (-1)^4 \\
& = 1
\end{aligned}$$

Q2. Write the conjugate of the following numbers.

(i) $2 + 3i$

Let $z = 2 + 3i$

Then $\bar{z} = 2 - 3i$

(ii) $3 - 5i$

Let $z = 3 - 5i$

Then $\bar{z} = 3 + 5i$

(iii) $-i$

Let $z = 0 - i$

Then $\bar{z} = 0 + i = i$

(iv) $-3 + 4i$

Let $z = -3 + 4i$

Then $\bar{z} = -3 - 4i$

(v) $-4 - i$

Let $z = -4 - i$

Then $\bar{z} = -4 + i$

(i) $i - 3$

Let $z = -3 + i$

Then $\bar{z} = -3 - i$

Q3. Write the real and imaginary part of the following numbers.

(i) $1 + i$

Let $z = 1 + i$

$\text{Re}(z) = 1$, $\text{Im}(z) = 1$

(ii) $-1 + 2i$

Let $z = -1 + 2i$

$\text{Re}(z) = -1$, $\text{Im}(z) = 2$

(iii) $-3i + 2$

Let $z = 2 - 3i$

$\text{Re}(z) = 2$, $\text{Im}(z) = -3$

(iv) $-2 - 2i$

Let $z = -2 - 2i$

$\text{Re}(z) = -2$, $\text{Im}(z) = -2$

(v) $-3i$

Let $z = -3i$

$$\text{Re}(z) = 0, \text{Im}(z) = -3$$

$$(i) 2 + 0i$$

$$\text{Let } z = 2 + 0i$$

$$\text{Re}(z) = 2, \text{Im}(z) = 0$$

Q4. Find the value of x and y if

$$x + iy + 1 = 4 - 3i$$

$$\text{Sol: } x + iy = 4 - 1 - 3i$$

$$x + iy = 3 - 3i$$

$$x = 3, iy = -3$$

Ex 2.6.Q7 (iii)

$$(3 + 4i)^2 - 2(x - yi) = x + yi$$

$$(3)^2 + (4i)^2 + 2(3)(4i) = x + yi + 2(x - yi)$$

$$9 + 16i^2 + 24i = x + yi + 2x - 2yi$$

$$9 + 16(-1)^2 + 24i = 3x - yi$$

$$9 - 16 + 24i = 3x - yi$$

$$-7 + 24i = 3x - yi$$

Comparing real and imaginary parts

$$3x = -7, -y = 24$$

$$x = -7/3, y = -24$$

Ex 2.6 Q1 (iv)

$$\begin{aligned} & 2i^2 + 6i^3 + 3i^{16} + 6i^{19} + 4i^{25} \\ &= 2(-1) + 6i^2 \cdot i + 3(i^2)^8 - 6i^{18} \cdot i + 4i^{24} \cdot i \\ &= -2 + 6(-1) \cdot i + 3(-1)^8 - 6(i^2)^9 \cdot i + 4(i^2)^{12} \cdot i \\ &= -2 - 6i + 3(1) - 6(-1)^9 \cdot i + 4(-1)^{12} \cdot i \\ &= -2 - 6i + 3 - 6(-1)i + 4(1) \cdot i \\ &= -2 - 6i + 3 + 6i + 4i \\ &= 1 + 4i \end{aligned}$$

REMAINING QUESTIONS OF EX 2.4

Q3. (PART 1)

SIMPLIFY

$$\begin{aligned} & \frac{2^{\frac{1}{3}} \times (27)^{\frac{1}{3}} \times (60)^{\frac{1}{2}}}{(180)^{\frac{1}{2}} \times (4)^{\frac{-1}{3}} \times (9)^{\frac{1}{4}}} \\ &= \frac{2^{\frac{1}{3}} \times (3^3)^{\frac{1}{3}} \times (2^2 \times 3 \times 5)^{\frac{1}{2}}}{(2^2 \times 3^2 \times 5)^{\frac{1}{2}} \times (2^2)^{\frac{-1}{3}} \times (3^2)^{\frac{1}{4}}} \\ &= \frac{2^{\frac{1}{3}} \times 3^{\frac{1}{3}} \times (2^2 \times \frac{1}{2} \times 3^{\frac{1}{3}} \times 5^{\frac{1}{2}})}{(2^{2 \times \frac{1}{2}} \times 3^{2 \times \frac{1}{2}} \times 5^{\frac{1}{2}}) \times 2^{2 \times \frac{-1}{3}} \times 3^{2 \times \frac{1}{4}}} \\ &= \frac{2^{\frac{1}{3}} \times 3^{\frac{1}{3}} \times 2 \times 3^{\frac{1}{3}} \times 5^{\frac{1}{2}}}{2 \times 3 \times 5^{\frac{1}{2}} \times 2^{\frac{-2}{3}} \times 3^{\frac{1}{2}}} \\ &= \frac{2^{\frac{1}{3}}}{2^{\frac{-2}{3}}} \quad \dots \text{AS THE BASES ARE THE SAME, SO IT CAN BE WRITTEN AS SINGLE} \\ &= 2^{\frac{1}{3} + \frac{2}{3}} \\ &= 2^{\frac{3}{3}} \\ &= 2 \end{aligned}$$

EX 3.1**Q.** express each of the following numbers in scientific notation

1. 5700

$$= 5.7 \times 10^3 \quad (\text{move decimal point three places to left})$$

2. 49,800,000

$$= 4.89 \times 10^7 \quad (\text{move decimal point seven places to left})$$

3. 96,000,000

$$= 9.6 \times 10^7 \quad (\text{move decimal point seven places to left})$$

4. 416.9

$$= 4.169 \times 10^2 \quad (\text{move decimal point two places to left})$$

5. 83,000

$$= 8.3 \times 10^4 \quad (\text{move decimal point four places to left})$$

6. 0.00643

$$= 6.43 \times 10^{-3} \quad (\text{move decimal point three places to left})$$

7. 0.0074

$$= 7.4 \times 10^{-3} \quad (\text{move decimal point three places to right})$$

8. 60,000,000

$$= 6 \times 10^7 \quad (\text{move decimal point seven places to left})$$

9. 0.00000000395

$$= 3.95 \times 10^{-9} \quad (\text{move decimal point nine places to right})$$

10. $\frac{275,000}{0.0025}$ *(move decimal point five places to left)*

$$= \frac{2.75 \times 10^5}{2.5 \times 10^{-3}}$$

*move decimal point three places to right***EX3.2****Q2.** express the following number into ordinary numbersa. 6×10^{-4}

$$= \frac{6}{10^4}$$

$$= \frac{6}{10000}$$

$$= 0.0006$$

b. 5.06×10^{10}

$$= 5.06 \times 10000000000$$

$$= 50600000000$$

c. 9.018×10^{-6}

$$= \frac{9.018}{10^6}$$

$$= \frac{9.018}{1000000}$$

$$= 0.000009018$$

d. 7.865×10^8

$$= 7.865 \times 100000000$$

$$= 786500000$$

EX 3.3**Q4.** what replacement for the unknown in each of the following will make the statement true?i. $\log_3 81 = L$

in exponential form

iv. $10^p = 40$ $\log 40 = p$

$$3^L = 81$$

$$3^L = 3^4$$

$$= 1.6021$$

bases are equal so the exponential are equals
 $L = 4$

ii. $\log_a 6 = 0.5$
 in exponential form

$$a^{0.5} = 6$$

$$a^{\frac{1}{2}} = 6$$

squaring both sides

$$\left(a^{\frac{1}{2}}\right)^2 = (6)^2$$

$$a = 36$$

iii. $\log_5 n = 2$
 in exponential form

$$5^2 = n$$

$$n = 25$$

Q5. Evaluate

i. $\log_2 \frac{1}{128}$

$$\text{let } x = \log_2 \frac{1}{128}$$

in exponential form

$$2^x = \frac{1}{128}$$

$$2^x = \frac{1}{2^7}$$

$$2^x = 2^{-7}$$

$$x = -7$$

ii. $\log_{\sqrt[2]{2}} 512$ to the base $\sqrt[2]{2}$

$$\log_{\sqrt[2]{2}} 512$$

$$\text{let } x = \log_{\sqrt[2]{2}} 512$$

in exponential form

$$\left(\sqrt[2]{2}\right)^x = 512$$

$$\left(2 \times 2^{\frac{1}{2}}\right)^x = 2^9$$

$$\left(2^{1+\frac{1}{2}}\right)^x = 2^9$$

$$\left(2^{\frac{3}{2}}\right)^x = 2^9$$

$$2^{\frac{3}{2}x} = 2^9$$

as the bases were same so

$$\frac{3}{2}x = 9$$

$$x = 9 \div \frac{3}{2}$$

$$x = 9 \times \frac{2}{3}$$

$$x = 3 \times 2 \qquad x = 6$$

Q6. Evaluate the value of x from the following statements

i. $\log_2 x = 5$

in exponential form

$$2^5 = x$$

$$x = 32$$

ii. $\log_{81} 9 = x$

in exponential form

$$81^x = 9$$

$$(9^2)^x = 9$$

$$9^{2x} = 9^1$$

$$2x = 1 \text{ or } x = \frac{1}{2}$$

iii. $\log_{64} 8 = \frac{x}{2}$

in exponential form

$$(64)^{\frac{x}{2}} = 8$$

$$(8^2)^{\frac{x}{2}} = 8$$

$$8^{x \cdot \frac{1}{2}} = 8$$

$$8^x = 8^1$$

$$x = 1$$

iv. $\log_x 64 = 2$

in exponential form

$$x^2 = 64$$

$$x^2 = 8^2, \quad x = 8$$

EX 3.3

Q1. write the following into sum or difference

i. $\log (A \times B)$

$$= \log A + \log B$$

ii. $\log \frac{15.2}{30.5}$

$$= \log 15.2 - \log 30.5$$

iii. $\log \frac{12 \times 5}{8}$

$$= \log (21 \times 5) - \log 8$$

$$= \log 21 + \log 5 - \log 8$$

iv. $\log \sqrt[3]{\frac{7}{15}}$

$$= \log \left(\frac{7}{15} \right)^{\frac{1}{3}}$$

$$= \frac{1}{3} \log \frac{7}{15}$$

$$= \frac{1}{3} (\log 7 - \log 15)$$

v. $\log \frac{(22)^{\frac{1}{3}}}{5^3}$

$$= \log (22)^{\frac{1}{3}} - 3 \log 5$$

v. $\log_3 x = 4$

in exponential form

$$3^4 = x$$

$$x = 81$$

$$= \frac{1}{3} \log 22 - 3 \log 5$$

$$\text{vi. } \log \frac{25 \times 47}{29} = \log (25 \times 47) - \log 29 = \log 25 + \log 47 - \log 29$$

Q4. Write the following in te form of single logarithm

$$\begin{aligned} 1. \quad & \log 21 + \log 5 \\ &= \log (21 \times 5) \end{aligned}$$

$$\begin{aligned} 2. \quad & \log 25 - 2 \log 3 \\ &= \log 25 - \log 3^2 \\ &= \log \left(\frac{25}{3^2} \right) \end{aligned}$$

$$\begin{aligned} 3. \quad & 2 \log x - 3 \log y \\ &= \log x^2 - \log y^3 \\ &= \log \left(\frac{x^2}{y^3} \right) \end{aligned}$$

$$\begin{aligned} 4. \quad & \text{Log } 5 + \log 6 - \log 2 \\ &= \log (5 \times 6) - \log 2 \\ &= \log \left(\frac{5 \times 6}{2} \right) \end{aligned}$$

Q4. Calculate the following :

I. $\text{Log}_3 2 \times \log_2 81$

$$= \frac{\log 2}{\log 3} \times \frac{\log 81}{\log 2}$$

$$= \frac{\log 81}{\log 3}$$

$$= \frac{\log 3^4}{\log 3}$$

$$= \frac{4 \log 3}{\log 3}$$

$$= 4$$

II. $\text{Log}_5 3 \times \log_3 25$

$$= \frac{\log 3}{\log 5} \times \frac{\log 25}{\log 3}$$

$$= \frac{\log 25}{\log 5} = \frac{\log 5^2}{\log 3} = \frac{2 \log 5}{\log 3}$$

$$= 2$$

Q5. If $\log 2 = 0.3010$, $\log 3 = 0.4771$, $\log 5 = 0.6990$ then find values

a. $\text{Lo } 32$

$$= \log 2^5$$

$$= 5 \log 2$$

$$= 5 \times 0.3010$$

$$= 1.5050$$

b. $\text{Log } 24$

$$= \log 8 \times 3$$

$$= \log 2^3 \times 3$$

$$= 3\log 2 + \log 3$$

$$= 3 \times 0.3010 + 0.4771$$

$$= 0.9030 + 0.4771$$

$$= 1.3801$$

c. $\text{Log } \sqrt{3\frac{1}{3}}$

$$= \text{Log } \sqrt{\frac{10}{3}}$$

$$= \log \left(\frac{2 \times 5}{3}\right)^{\frac{1}{2}}$$

$$= \frac{1}{2} \log \left(\frac{2 \times 5}{3}\right)$$

$$= \frac{1}{2} [\log 2 + \log 5 - \log 3]$$

$$= \frac{1}{2} [0.3010 + .6990 - 0.4771]$$

$$= \frac{1}{2} (0.5229)$$

$$= 0.2615$$

d. $\text{Log } \frac{8}{3}$

$$= \log 8 - \log 3$$

$$= \log 2^3 - \log 3$$

$$= 3\log 2 - \log 3$$

$$= 3(0.3010) - 0.4771$$

$$= 0.9030 - 0.477$$

$$= 0.4259$$

e. $\text{Log } 30$

$$= \log(2 \times 3 \times 5)$$

$$= \log 2 + \log 3 + \log 5$$

$$= (0.3010 + 0.4771 + 0.6990)$$

$$= 1.4771$$

Ex. 3.4

Q1a. 0.8176×13.64

Sol: Let $x = 0.8176 \times 13.64$

Taking log of both sides

$$\log x = \log(0.8176 \times 13.64)$$

$$\log x = \log 0.8176 + \log 13.64$$

$$= -0.0875 + 1.1348$$

$$\log x = 1.047$$

$$x = \text{antilog } 1.047$$

$$x = 11.15$$

b. $(789.5)^{\frac{1}{8}}$

Let $x = (789.5)^{\frac{1}{8}}$

Taking log of both sides

$$\log x = \log (789.5)^{\frac{1}{8}}$$

$$= \frac{1}{8} \log 789.5$$

$$= \frac{1}{8} (2.8974)$$

Log x = 0.3622

X = antilog 0.3622

= 2.3023

c.

$$\text{let } x = \frac{\frac{0.678 \times 9.01}{0.0234}}{\frac{0.678 \times 9.01}{0.0234}}$$

Taking log of both sides

$$\text{Log } x = \log \frac{0.678 \times 9.01}{0.0234}$$

$$= \log 0.678 + \log 9.01 - \log 0.0234$$

$$= -0.1688 + 0.9547 - (-1.6307)$$

Log x = -0.1688 + 0.9547 + 1.6307

log x = 2.4166

x = antilog 2.4166

= 260.9 or 261

d. $\sqrt[5]{2.709} \times \sqrt[7]{1.239}$

Let x = $\sqrt[5]{2.709} \times \sqrt[7]{1.239}$

Taking log of both sides

$$\text{Log } x = \log(\sqrt[5]{2.709} \times \sqrt[7]{1.239})$$

$$= \frac{1}{5} \log 2.709 + \frac{1}{7} \log 1.239$$

$$= \frac{1}{5} (0.428) + \frac{1}{7} (0.09307)$$

$$= 0.08656 + 0.0133$$

Log x = 0.0999

X = antilog 0.0999

X = 1.259

v.

$$\text{Let } x = \frac{\frac{(1.23) \times (0.6975)}{0.0075 \times 1278}}{\frac{(1.23) \times (0.6975)}{0.0075 \times 1278}}$$

Taking log of both sides

$$\log x = \log \frac{(1.23) \times (0.6975)}{0.0075 \times 1278}$$

$$= \log 1.23 + \log 0.6975 - \log 0.0075 - \log 1278$$

$$= 0.0899 + (-0.1565) - (-2.1249) - 3.1065$$

$$= 0.0899 - 0.1565 + 2.1249 - 3.1065$$

$$= -1.0482$$

Taking antilog in both sides

X = antilog -1.0482

X = 0.0895

$$\text{vi. } \sqrt[3]{\frac{0.7214 \times 20.37}{60.8}}$$

$$\text{let } x = \sqrt[3]{\frac{0.7214 \times 20.37}{60.8}}$$

taking log on both sides

$$\log x = \log \sqrt[3]{\frac{0.7214 \times 20.37}{60.8}}$$

$$= \left(\frac{0.7214 \times 20.37}{60.8} \right)^{\frac{1}{3}}$$

$$= \frac{1}{3} (\log 0.7214 + \log 20.37 - \log 60.8)$$

$$= \frac{1}{3} (-0.1418 + 1.3090 - 1.7839)$$

$$= \frac{1}{3} (-0.6167)$$

$$= -0.2056$$

Taking antilog

$$X = \text{antilog } -0.2056$$

$$x = 0.6229$$

$$\text{vii. } \frac{83 \times \sqrt[3]{92}}{127 \times \sqrt[5]{246}}$$

$$\text{let } x = \frac{83 \times \sqrt[3]{92}}{127 \times \sqrt[5]{246}}$$

taking log on both sides

$$\log x = \log \frac{83 \times \sqrt[3]{92}}{127 \times \sqrt[5]{246}}$$

$$= \log 83 + \log (92)^{\frac{1}{3}} - \log 127 - \log (246)^{\frac{1}{5}}$$

$$= \log 83 + \frac{1}{3} \log 92 - \log 127 - \frac{1}{5} \log 246$$

$$= 1.9191 + \frac{1}{3} (1.9638) - 2.1038 - \frac{1}{5} (2.3909)$$

$$= 1.9191 + 0.6546 - 2.1038 - 0.4782$$

$$= -0.0083$$

Taking antilog

$$X = \text{antilog } -0.0083$$

$$X = 0.9811$$

$$\text{viii. } \frac{(438)^3 \sqrt{0.056}}{(388)^4}$$

$$\text{let } x = \frac{(438)^3 \sqrt{0.056}}{(388)^4}$$

taking log on both sides

$$\begin{aligned}
\log x &= \log \frac{(438)^3 \sqrt{0.056}}{(388)^4} \\
&= 3 \log 438 \times (0.056)^{\frac{1}{2}} - 4 \log 388 \\
&= 3 (\log 438) + \frac{1}{2} (0.056) - 4(\log 388) \\
&= 3(2.6415) + \frac{1}{2} (-1.2518) - 4(2.5888) \\
&= 7.9244 + (-0.6259) - 10.355 \\
&= 7.9244 - 0.6259 - 10.355 \\
&= -3.0565
\end{aligned}$$

Taking antilog on both sides

$$X = \text{antilog } -3.0565$$

$$x = 0.0008778$$