ZàÎÂà-2. âÐnÊ ¡âsÂààm qâÊqn §ýà qâÊqn rÂàà¢u mnà âÐnÊmà ªà½ààà§ý §ýà Íuk§ý ZààÄm §ýLâk¥ ñ

Draw the circuit diagram of fixed bias circuit and derive the expression for the stability factors.

OR

¥§ý PNP ¹àâkÐ¹Ê §ýà £suâÂà™ ¡àoâÊ (CB) âwoà t ¡âsvàÕàâ½à§ý w§ýà §ýà ytIà¢¥ ñ

Explain the characteristic curve of a PNP transistor in common base (CB) mode.

ZàÎÂà-3. ¥§ý RC uÜªtm Zàwo§ý §ýà qâÊqn rÂàà§ýÊ §ýàuâwâo ytIà¢¥ mnà ¢y§ý vàs âvâh¥ ñ

Explain the working of a RC coupled amplifier with circuit diagram and write its advantages.

OR

¥§ý ¦ý½ààtº§ý qÂàß âÂàwÎàã Zàwo§ý §ýà qâÊqn rÂàà§ýÊ wàÌ¹mà vàs §ý âv¥ Íuk§ý ZààÄm §ýLâk¥ ñ

Derive an expression for voltage gain of negative voltage feedback amplifier with circuit diagram.

ZàÎÂà-4. ¥§ý §ýy§ýâ»ªà (»rv) ¹ÜÂ» Zàwo§ý §ýL §ýàuâwâo qâÊqn rÂàà§ýÊ ytIà¢¥ ñ

Explain the working of a cascading (double) tuned amplifier with circuit diagram.

OR

¹ÜÂ» wªà 'C' Zàwo§ý §ýà qâÊqn rÂàà§ýÊ ytIà¢¥ ñ

Explain tuned class 'C' amplifier with diagram.

ZàÎÂà-5. ¥§ý OP-AMP §ýà ÂààÂà ¢ÂwÊâ¹ªà Zàwo§ý §ýL sààm £quàªà t §ýy vàm Ñ? ytIà¢¥ ñ

How is an OP-AMP used as non inverting amplifier? Explain.

OR

Adder ¥w Subtractor ¨uà Ñ? ytIà¢¥ ñ

What are Adder and Subtractor? Explain.

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Annual Examination - 2017

B.Sc.-I

ELECTRONICS

Paper - II

LINEAR ACTIVE CIRCUITS

Time : 3 Hrs. Max.Marks : 50

Min Marks : 17

¹âq ß h½»' ¡' t Ây ¡âmvIÙàÊã ZàÎÂà Ñ, âkÂÑ Ñv §ýÊÂàà ¡âÂàwàuI Ñ ñ h½»' 'r' t vIÙàÊã ZàÎÂà h½»' 'y' t Àãi £ÙàÊãu ZàÎÂà Ñ ñ h½»' ¡' §ýà yry qÑv Ñv §ýÊ ñ

Note: Section 'A' , containing 10 very short answer type questions, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

h½»-'¡'(Section-'A')

âÂàÈÂààâ§ým ¡âm vI£ÙàÊãu ZàÎÂàà §ý £ÙàÊ ¥§ý uà Àà wà¨uà t Àà ñ
(Answer the following very short-answer-type questions in one or two sentences) (1x10=10)

ZàÎÂà-1. »àuà» â§ýy §ýÑm Ñ?

What do you understand by diode?

ZàÎÂà-2. '¡wÕàu qm' y ¡àq ¨uà ytIm Ñ?

What is meant by 'Depletion Layer'?

ZàÎÂà-3. ¹ààkÐ¹Ê §ýà ¨uà §ýàu Ñ?

What is the function of transistor?

ZàÎÂà-4. ¹ààkÐ¹Ê t ¡àoâÊ §ýà ¨uà §ýàu Ñ?

What is the function of base in a transistor?

ZàÎÂà-5. ¦ý½ààtº§ý wàÌ¹mà qÂàß âÂàwÎàm Zàwo§ý §ý vàs âvâh¥ ñ

Write the advantages of negative voltage feedback amplifier.

ZàÎÂà-6. h qÊàtâ¹Êà §ýL £quàâªàmà¥ âvâh¥ ñ

Write the utility of h parameters.

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ZàÎÂà-7. Zàwo§ý â§ýy§ýÑm Ñ?

What are amplifiers?

ZàÎÂà-8. ¹ÜÂ»| Zàwo§ý §ýà §ýà¢ ¥§ý £quàªà rmà¢¥ ñ

Write any one use of tuned amplifier.

ZàÎÂà-9. â§ýyä Àààv Øà §ý âv¥ ¡àwÎu§ý Zààmro ¨uà Ñ?

What is the required condition for an oscillator?

ZàÎÂà-10. wãÂà ârk Àààv Øà §ýL ¡àwâÙà qÊày ¨uà Ñ?

What is the range of frequency for Wein Bridge oscillator?

h½»|-'r' (Section-'B')

âÂàÈÂàààl§ým vii £ÙàÊàu ZàÎÂààµ §ý £ÙàÊ 150-200 ÎàÆÀ-yàtà t| À| ñ
(Answer the following short-answer type questions with word limit 150-200) **(3x5=15)**

ZàÎÂà-1. ¥§ý ¡olmÊªà âÀ˜§ýàÊã §ýL â§ýuàâwâo qáÊqn rÂàà§ýÊ ytlà¢¥ ñ

Explain the working of a half wave rectifier with a neat diagram.

OR

kÂàÊ »|àuà»| §ýà wàÌ¹|k Êªuv¹Ê §ýL sààm £quàªà t| §ýy| vàuà kàmà Ñ, qáÊqn rÂàà§ýÊ ytlà¢¥ ñ

How can a zener diode be used as voltage regulator? Explain with circuit diagram.

ZàÎÂà-2. £suâÂà™| yªààÑã âwoà t| ¹|ààkÐ¹Ê §ýL £½yk§ý oàÊà $6mA$ mnà ¡àoÊ oàÊà Ñ ñ mnà §ý tàÂà Öààm §ýLâk¥ ñ

In common collector mode of a transistor, emitter current is and base current is . Find the value of and

OR

¹|ààkÐ¹Ê §ý ràuâyªà y ¡àq ¨uà ytlm Ñ? wàÌ¹|k âwsàk§ý ràuâyªà âwâo §ýà ytlà¢¥ ñ

What do you understand by transistor biasing? Describe the voltage divider biasing method.

ZàÎÂà-3. ¹|ààkÐ¹Ê §ý mnà âwoà t| qÊàtã¹Ê §ý âv¥ ytmÌu qáÊqn rÂàà¢u ñ

Draw the equivalent circuit for h parameters in and mode of a transistor.

OR

¥§ý ¡Ìq âyªÂàv Zàwo§ý §ýà qáÊqn rÂàà§ýÊ wàÌ¹|k vàs, oàÊà vàs §ý âv¥ ÍukÌ§ý ZààÂm §ýLâk¥ ñ

Draw a circuit diagram of small signal amplifier and derive an expression for voltage gain and current gain.

ZàÎÂà-4. ¥§ýv ¹ÜÂ»| Zàwo§ý ¨uà Ñ? ¢y§ýà ytmÌu qáÊqn t| âwÎvx½à §ýLâk¥ ñ

What is single tuned amplifier? Analyse it, in A.C. equivalent circuit.

OR

¹ÜÂ»| Zàwo§ý ¥w ¡Âu Zàwo§ýà t| ¡mÊ âvâh¥ mnà ¹ÜÂ»| Zàwo§ýà §ý vàsà §ýà w½àÂà §ýLâk¥ ñ

Differentiate tuned amplifiers from other amplifiers and write the advantages of tuned amplifier.

ZàÎÂà-5. wãÂà ârk Àààv Øà qáÊqn rÂàà§ýÊ ¢y§ýL §ýàuâwâo ytlà¢¥ ñ

Explain the working of Wein bridge oscillator with diagram.

OR

Ñà¹|v Zàwo§ý §ýà qáÊqn rÂàà§ýÊ ¢y§ýL §ýàuâwâo âvâh¥ ñ

Explain the working of Hartley oscillator with diagram.

h½»|-'y' (Section-'C')

âÂàÈÂàààl§ým Àäii £ÙàÊàu ZàÎÂààµ §ý £ÙàÊ 300-350 ÎàÆÀ-yàtà t| À| ñ
(Answer the following long-answer type questions with word limit 300-350) **(5x5=25)**

ZàÎÂà-1. âÄyÌ¹Ê ¨uà Ñ? ¥§ý âÀ˜§ýàÊã §ý âÂàªàm wàÌ¹|k y y¨ÎàÂà âÄyÌ¹Ê â§ýy Zà§ýàÊ ¤ýàt§ýà §ýt §ýÊmà Ñ?

What is a filter? How does section filter reduce the ripple factor in the output of a rectifier?

OR

PN k¨ÎàÂà »|àuà»| §ýà ¡âsvàÕàâ½à§ý w§ý qáÊqn rÂàà§ýÊ ytlà¢¥ mnà Ðnâm§ý w ªààm§ý ZààmÊào §ý âv¥ Íuk§ý âvâh¥ ñ

Explain the characteristic curve of a PN junction diode with circuit diagram and write the expresssion for static and dynamic resistance.